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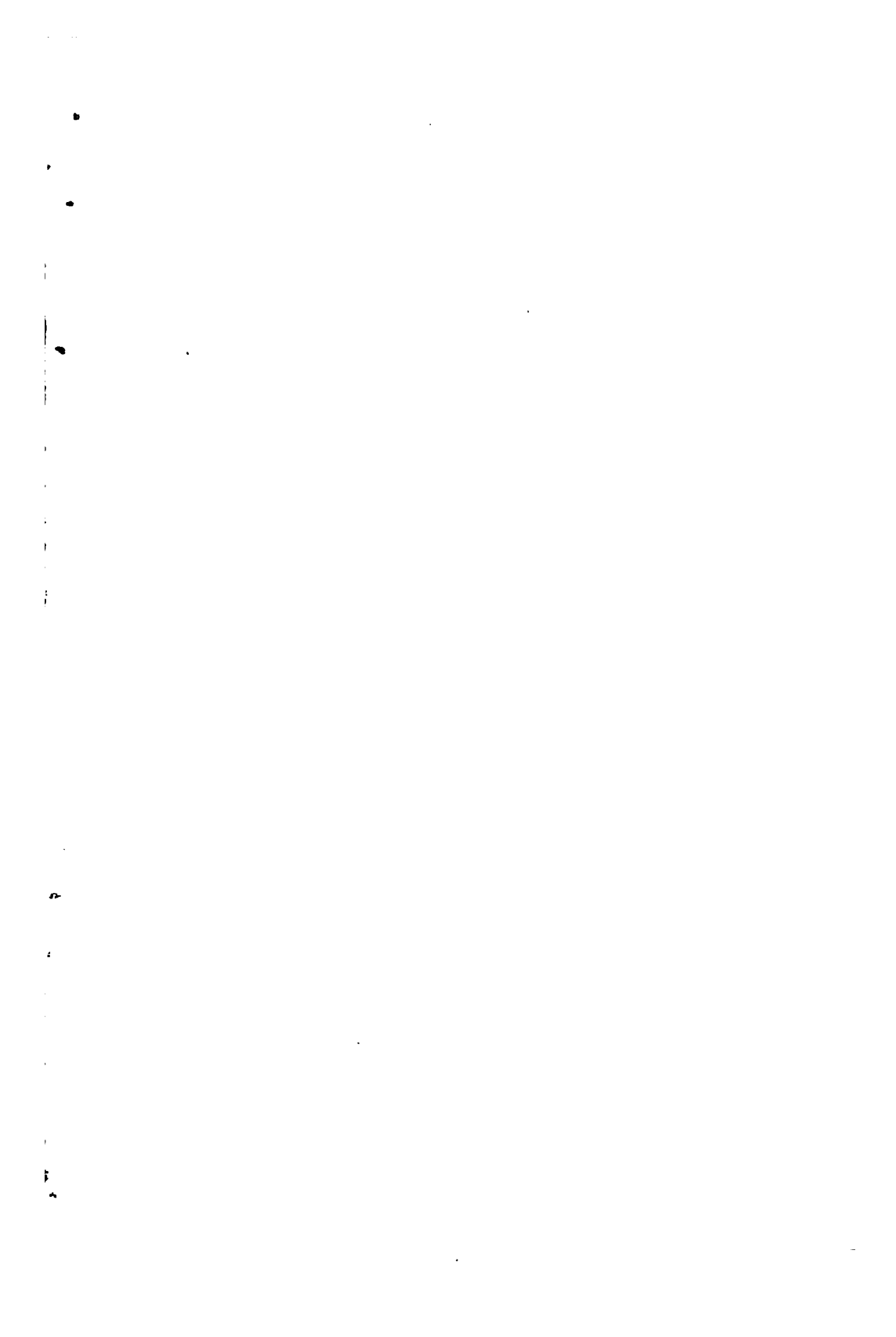
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Add. MS., B.M.

BOOK OF HOURS OF BONA SFORZA, DUCHESS OF MILAN: ITALIAN,
ABOUT A.D. 1490

STORY AND ART OF THE ANCIENT & MODERN PRINTING

THE PART OF PRINTING
AS A SCIENCE, THE
TOOLS AND MATERIALS
OF ANCIENT AND MODERN

BY
JAMES M. WELLS

Author of "The Art of the Book," "The Art of the Printer,"
and "The Art of the Bookbinder."

WITH 24 FULL-PAGE ILLUSTRATIONS

NEW YORK
E. P. DUTTON & COMPANY
281 FIFTH AVENUE
1914

HISTORY AND METHODS OF ANCIENT & MODERN PAINTING

*

FROM THE EARLIEST TIMES TO THE BEGINNING
OF THE RENAISSANCE PERIOD INCLUDING THE
METHODS AND MATERIALS OF THE PAINTER'S CRAFT
OF ANCIENT AND MODERN TIMES

BY

JAMES WARD

AUTHOR OF "THE PRINCIPLES OF ORNAMENT," "HISTORIC ORNAMENT," "COLOUR
HARMONY AND CONTRAST," "Fresco PAINTING," ETC.

WITH 44 FULL-PAGE ILLUSTRATIONS

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PREFACE

IN this volume I have attempted to outline the History and Methods of Painting from the earliest Egyptian times to the beginning of the Italian Renaissance, and have endeavoured to explain and describe the materials used in painting in ancient and modern times. As this work is primarily written for the use of students, I have thought it best to treat of "Painting" in its broadest sense, which would include the use and application of colours and mediums in decorative and ornamental painting, as well as in other branches of this art, which are generally classed under the so-called "fine arts," where the word "painting" is used in a more restricted sense, and is popularly but inaccurately understood to be limited to the art of painting pictures. We may go further than this, and say that in the more modern sense of the word, painting, as an art, is more particularly applied to pictures executed in an oil medium. Even pictures in water-colours, however carefully or elaborately painted, are known to the public and to the auctioneer as "drawings." In the whirligig of time "the fine gold is changed." Some words in our language have entirely lost their original meaning, while the meaning of others is becoming more narrowed and restricted.

The mosaic designer and worker is a painter, and so is the embroiderer, although neither of them uses a brush in applying their colours to their pictures, but they both decorate or paint in colour. The former paints with his fingers, instead of a brush, and uses vitrified colours instead of moist pigments, while the latter paints with a needle, using coloured threads instead of paints.

The oldest form of painting, from which the art of picture painting has been gradually evolved and developed, was a purely decorative or ornamental art, and therefore no attempt is made in this volume to divorce ornamental painting and decorative polychromy from the art of picture painting, for it must be clearly evident that from the most archaic attempts in the ornamental polychromy of the early nations to the great masterpieces of Michelangelo, Titian, Raffaele, Leonardo and Velasquez, we may trace the connecting links in the gradual and upward development of that particular art which we must consider under the comprehensive and general term of "Painting."

I desire to thank the authorities of the British Museum for their kind permission to use the illustrations of miniature painting.

J. WARD.

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CHAPTER I
EGYPTIAN PAINTING AND COLOUR
DECORATION

CHAPTER I

EGYPTIAN PAINTING AND COLOUR DECORATION

PAINTING, as we understand the word, in which is expressed the gradation of tones of colour, the juxtaposition of harmonious tints, perspective, and the rendering of light and shade effects, was never really understood by the ancient Egyptians. Painting in Egypt was not an independent art, as it consisted solely of outlines filled in with flat colours, and was therefore a kind of illumination, in imitation of the coloured decoration of the sculptured intaglios, cameos, or bas-reliefs, which generally covered the whole of the outside and inside of their great buildings. It was, therefore, more or less subordinate to sculpture. Our knowledge of Egyptian painting, apart from the colour decoration of their sculpture and other architectural features, is chiefly derived from the wall decorations of their tombs and from the mummy cases.

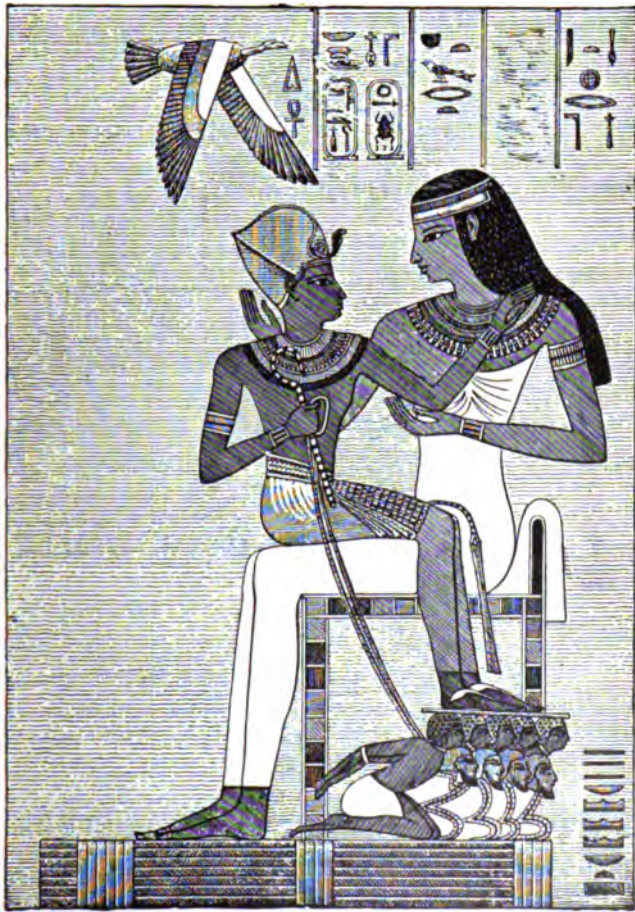
Considering the limitations of their colour range, the absence of half-tones and of broken tints, and their methods of execution, it is wonderful how well they managed to obtain and preserve that fine sense and expression of colour harmony which is often found in their work. Some of their enamels, or coloured glass, and inlaid

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work in precious stones, some paintings on papyri and many of the sun-bleached decorations, where time has mellowed their tints, are very beautiful in colour, but at the same time it might be said, that the arbitrary use of certain uniform tints applied to surfaces, each of which had its own colour value, more than often prevented the Egyptian decorator from experimenting in colour harmony. On the other hand, we must not be unmindful that it was the Egyptians who first used certain combinations or arrangements of blue and green which is the key-note of so much beautiful Assyrian, Persian, and other decoration. This blue-green combination had its origin in Egypt, as far back as the prehistoric times, in the glazed beads and pottery. Even glazing in two colours dates from the time of Mena, the first king of Egypt (5500 B.C.). Scarabs, tiles and pottery were covered with green-blue glazes in the third and fourth dynasties, and a further development in this direction took place in the eleventh and eighteenth dynasties.

The colour values for flesh tinting were—dark brownish-red for a man, lighter, or sometimes a light yellow for a woman, and for natives of different countries the colours differed, such as a light yellowish colour for prisoners, or people of more northern countries; Ethiopians were painted a very dark brown, and negroes black. Here to some extent nature was followed, though in a very arbitrary way.

The colours used by the Egyptians were the pigments and tints of yellow, red, blue, green,



EGYPTIAN PAINTING : IN A ROYAL TOMB AT GOURNAH :
AMENHOPHIS II AND GODDESS

brown, black and white. The yellows, reds, and browns were obtained from the ochre earths, the bright blues were mineral colours, composed of copper, sand and a sub-carbonate of soda, powdered and roasted in an oven, and then finely ground. The beautiful Egyptian blue used on their pottery, and also as painting pigment in decoration, was a frit or copper glaze, a kind of blue glass pigment. Such a colour would therefore be a perfect one for enamel painting and fresco. In some Egyptian glass objects cobalt blue has been used to colour the glass, but it does not seem to have been used as a painter's pigment. These blues have kept their colour well through the centuries. Ultramarine blue, from the lapis-lazuli, was sometimes used, and was imported from Central Asia. Indigo was the only vegetable colour used by the Egyptians. The greens were mixtures of blue and yellow; blacks were obtained from carbonaceous substances, and whites were made from lime, gypsum, and powdered enamels. Gold, in the leaf form, was also used in decoration, but was much thicker than the modern gold-leaf.

Egyptian colour combinations have a distinct and almost unique character of their own, quite different from those of any other time or country. To account for this traditional system of colouring, it is likely enough that they used in early times the brightest colours at their command in the greatest possible contrast, enhancing this contrast by dividing each colour from its neighbour by lines and bands of black and white. This would be done in order to emphasize the forms

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and contours of their architecture, to distinguish the various members and mouldings, to keep the construction clear, and to give the necessary variety and value to surfaces, all of which would be confused and nearly undistinguishable, if it were not for the sharp colour contrasts, in the dazzling brilliancy of the Eastern sunshine.

Strong and brilliant contrasts of colour are necessary in the decoration of buildings which are almost continually bathed in the sunshine of the East, and the same rule holds good as regards the colour decoration of gloomy and dark interiors, for in both cases the colours are partially "devoured," in one case by the brilliant light, and in the other by an excess of darkness. It is only in a clear, but modified light, like that reflected from white clouds, that broken colours and delicate half-tones show their full value.

The above-mentioned startling combinations of contrasting colours, which the Egyptians found best suited to emphasize the different features of their architecture, were eventually used by them in the decoration of all other forms and objects where colour was employed.

Although symbolism strongly permeated nine-tenths of their decorative art, it can hardly be said that they used colour to any great extent in a symbolic sense; two instances, however, may be mentioned, namely, in the flesh tints of nude figures, and in the case of the midnight blue sky colour, used on the passage and hall ceilings of their great temples, these blue surfaces being sometimes decorate with golden stars, and with



EGYPTIAN PAINTING AT THEBES

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ANCIENT AND MODERN PAINTING 7

vultures, the emblems of protection, displaying their immense outspreading wings.

It is worthy of notice that the Egyptian decorators employed the neutral colours, black and white, to the greatest advantage, both in masses and in outlines, in the nature of dividing lines between other colours, and it is owing to the judicious use of these neutrals that their colour arrangements are refreshed and redeemed from the taint of sickliness, or rankness.

No people ever excelled the Egyptians in their lavish use of colour in decoration; a building in Egypt was never thought to be completed until it had obtained its final colour finish. They generally concealed the limestone, sandstone, or granite surfaces of their walls by spreading over them a fine coating of white stucco in order to obtain a pure white ground, on which they could use their brilliant and startling combinations of colour to the greatest effect. The covering of sculptured forms with stucco was practised to a great extent in the twelfth dynasty (about 2500 B.C.), and was also very common during the Ptolemaic period (330–30 B.C.).

This lavish use of colour was not without its defects, for however satisfying was the expression of dignity and serenity in their sculptured figures, and in their solemn architecture, yet in many instances the immoderate use of abrupt and daring contrasts of colour, so richly spread over the surfaces of walls, columns and other places, while producing gorgeous effects of fascinating brilliancy, became at the same time a disturbing element

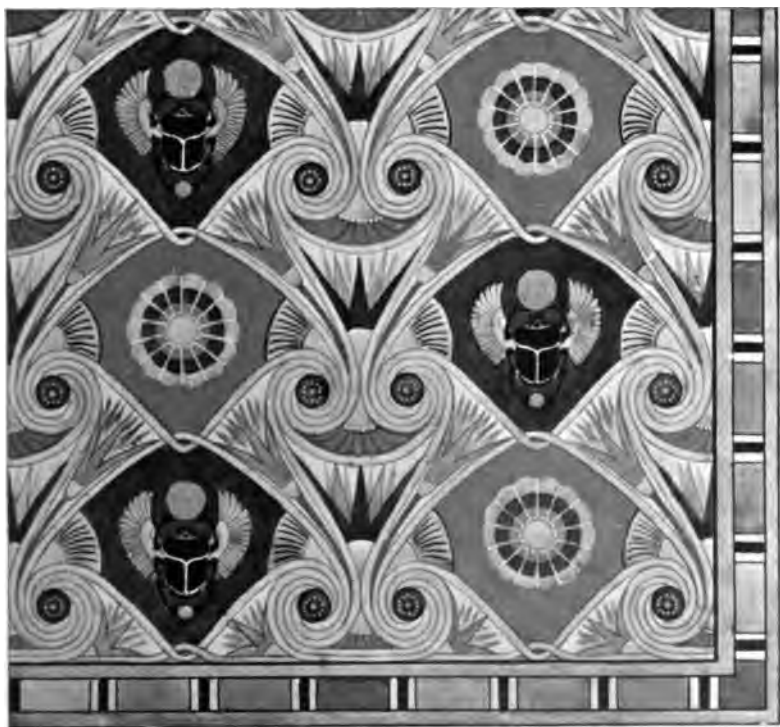
8 HISTORY AND METHODS OF

that in some cases marred the otherwise perfect unity of the architectural forms and masses. When judged in accordance with the practice of the Greeks, and of later nations, it must be said that the Egyptian decorator did not always hold the balance evenly between his treatment of the plain and decorated surfaces of his buildings.

The value of plain spaces and reticence of colour application in decoration, are generally better understood by the Western than by the Eastern nations.

The Egyptian methods of decoration consisted, as we have seen, in laying a stucco or gesso ground of lime, chalk, or gypsum either on the flat stone walls and other surfaces, or on the figures and other designs, which had been previously carved in low relief, or as intaglios. In the latter case the figures, and other work, were first outlined on the surfaces by the chief artist, and these outlines were afterwards cut into the stone by his assistants, with a chisel, or more likely with a knife; the extreme outer edges of the outlines were generally left sharp, and the inner portion of the incised lines were usually softened off towards the central spaces. The decorator then followed the sculptor in laying on the colour finish in flat tints as prescribed by the chief artist.

In the case of the wall paintings, found in the tombs, and the paintings on the coffins or mummy cases, and those on the cartonnage or outer mummy coverings, white gesso or stucco was also used as grounds for the colouring. Here again, the chief artist would outline the designs and



EGYPTIAN PAINTED CEILING DECORATION, NECROPOLIS OF THEBES :
18TH DYNASTY

ANCIENT AND MODERN PAINTING 9

his assistants would apply the colours in flat tints.

The Egyptian pigments and tints were used in most cases as water colours, or tempera, and with a vehicle or medium consisting of a tough size, thought to be composed of gum tragacanth and honey. Egg size may have also been used, and even gum-arabic, as this was a plentiful product of the native acacia trees, but it would not be so good or so lasting as tragacanth or egg size.

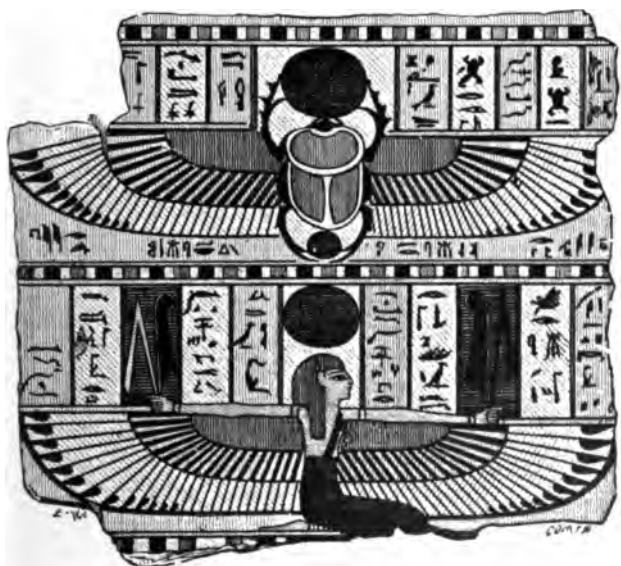
Brushes were made of reed fibres, and their palettes were of wood, alabaster, or glazed pottery, having hollows in them to hold the colours. The general method and nature of the painting was in distemper, as regards the wall paintings in the tombs, the decorations of the temples, and on some of the coffins or mummy cases, but on some of the latter objects the distemper colouring has been coated over with a resinous varnish, which has darkened with age, and destroyed in a great measure the original brilliance and purity of the colours. On some of the later mummy cases the paintings have been executed in a kind of encaustic method, where the wax used in the medium has been dissolved and diluted with naphtha spirit. This method of painting was practised and developed in Egypt during the Greek occupation of the country, and was doubtless introduced by the Greeks about 330 B.C. From the representations of artists at work, found in the tombs at Beni Hasan, we know that the Egyptians also painted easel pictures on wood panels.

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They had little regard for the principles of constructive decoration, as their figures and other designs usually covered walls, piers, columns, and pylons alike, some of the figures occupying three or four courses of masonry in upright measurement, regardless of the joints and seams of the building. The figures generally occur in horizontal rows, each row or series placed above or below each other, and separated by bands and fillets, on which are carved and painted the hieroglyphical inscriptions and other designs of symbolical ornament. Rarely, except in some cases of isolated or independent pieces of sculpture, were the figures cut out of one slab or block of stone.

The colour decoration of Egyptian buildings cannot well be studied apart from the sculptured figures and other carved motives that covered their walls and other surfaces, as we must bear in mind that almost all of their carved work was finished eventually in colour, and even where the painter worked without the co-operation of the sculptor, as on the decoration of the walls of the tombs, his work with the brush, where one might expect more elasticity of method and freedom in treatment, was characterized by the same monumental style and rigidity of drawing as that of the sculptured bas-reliefs. This would suggest that the master-artist who designed and sketched out the sculptured forms was the same person who outlined the forms and shapes of the painted wall decorations.

The Egyptians derived the motives of their decoration from five great sources, namely—



PAINTING ON A MUMMY CASE : 18TH TO 25TH DYNASTY

ANCIENT AND MODERN PAINTING 11

ANTHROPOMORPHIC,—where the human form was used to represent gods, goddesses, and other divinities.

ZOOMORPHIC,—in the sense of representing their conceptions of a god or man in animal form.

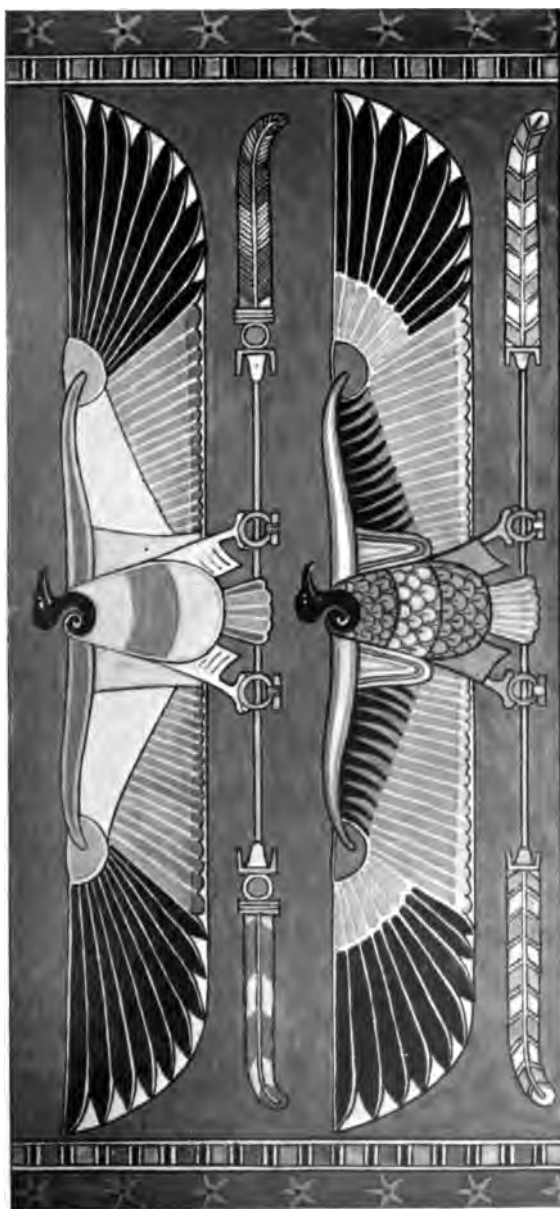
NATURALISTIC,—representations of flowers, plants, feathers, animals, etc.

GEOMETRIC,—such as lines, spirals, curves, frets, squares, circles, and interlacings.

STRUCTURAL,—decorative motives derived from weaving, basket-work, architectural construction, carpentry, rope twistings and bindings, palisading and reed fencing.

SYMBOLIC,—as the winged-globe, uræus, scarab, hieroglyphic signs, and some divinities.

The Egyptian decorator was not at a loss in finding motives and material to express his fanciful ideas, and to multiply and immortalize the deeds and events in the life of his rulers and royal masters, and in the supposed state of their lives in the land of the hereafter. With all this wealth of decorative material to his hand he found delight in the embellishment of the eternal masonry of his buildings, with the added dignity of creative form and the gaiety of colour.



EGYPTIAN PAINTED CEILING DECORATION, MEMPHIS AND THEBES : 18TH TO 30TH DYNASTIES

CHAPTER II
CHALDÆAN AND ASSYRIAN PAINTING
AND DECORATION

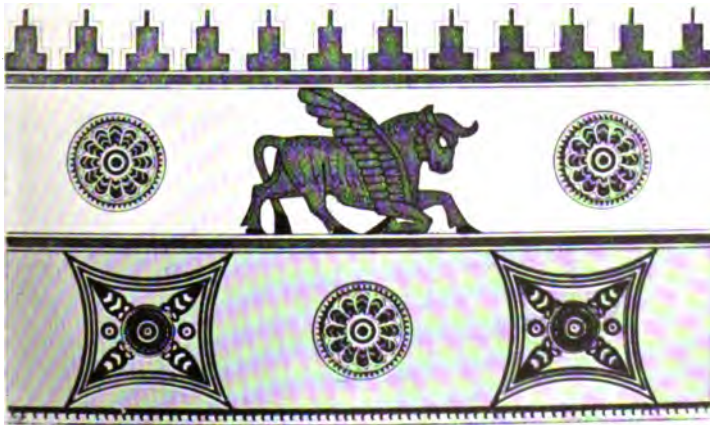
CHAPTER II

CHALDÆAN AND ASSYRIAN PAINTING AND DECORATION

THOUGH the art of the two nations—Assyria and Chaldæa—was practically one growth, whose roots were first planted in the soil of the lower, or southern kingdom, yet it is to Assyria, rather than to Chaldæa, that we must look for the best evidence that would enable us to form a fair idea of the character and style of the painting and colour finish adopted by the ancient people of the land of Mesopotamia, in the interiors and on the exteriors of their great buildings. This is principally accounted for by the fact that very few fragments of the building materials, on which colour has been applied, have been brought to light from the Chaldæan ruins, up to the present date, compared with the number of examples of designs in colour found on glazed bricks and stucco, and the traces of colouring on the sculptured slabs that have been unearthed in Assyria. But from those remains that have been found in the former places, and from the Greek historians' texts, we know that the younger civilization—the more northern nation of Assyria—was indebted to Chaldæa, not only for her art, but for her language, religion, writing and science as well.

Just as Rome copied and assimilated the art of Greece, so did Nineveh adopt that of Babylonia. More examples of colour decoration have been found at Nineveh, Nimroud, and Khorsabad than at Babylon, Mugheir, Warka, and Borsippa, but we are not without hope that still more examples will be found at the latter places, and, as a good sign of this, it may be mentioned that a party of German explorers, in 1900-1902, found a finely-coloured painting of a lion, done in enamel colours on glazed bricks, in the ruins of the Kasr-mound, identified as the ruins of Nebuchadnezzar's palace, at Babylon, this lion being almost similar in design, pose, and colour, as the animals painted on what is known as the "Lion's Frieze," from the ancient Persian palace at Susa. The Babylonian lion was evidently the prototype of the later Persian lion, which was also executed in enamel colours on glazed bricks.

In the domain of sculpture, however, the Assyrians excelled the Chaldæans. This was mainly owing to the fact that stone was more plentiful in the more northern and mountainous country, whereas in Chaldæa there was no building stone to be found. Therefore the architects of the latter country were compelled to use bricks and tiles for their building material, which were made from the clay, or alluvial deposits, that were brought down in great abundance by the rivers, and spread over the length and breadth of the lower Mesopotamian lands. Stone was too costly for use in Chaldæa, owing to the great distance from which it would have to be imported, con-



FIGURES ON UPPER PORTION, ENAMELLED BRICK; LOWER PORTION,
PAINTING ON STUCCO : ASSYRIAN, FROM NIMROUD

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ANCIENT AND MODERN PAINTING 17

sequently there have not been in the lower country any important sculptural remains that compare with the great alabaster figures of half man and half bull or lion, that formed the mighty portal entrance features to the palaces of Nineveh. The student will be acquainted with these great colossi, and with carved wall slabs with which the Assyrian architect flanked his doorways, and used as the wall linings to the halls and corridors of the palaces, many examples of which may be seen in the British Museum.

Although stone was plentiful in Assyria its use in the buildings was confined to the portal figures, dadoes, plinths, lower wall linings, and pavements. The main structural mass of their buildings consisted, like those of the Chaldæans, of bricks and mortar. Cedar-wood from the forests of Lebanon, and metals, as gold, silver, iron, lead, and copper, were largely used by both nations as building, but more especially as decorative materials. Perhaps owing to the scarcity of stone as a building material the Chaldæans seem to have made a great use of metals, by which, together with the extensive employment of enamelled bricks and tiles, they obtained a sumptuous style of decoration, that covered and enhanced the salient points, and all positions of importance in their buildings.

Philostratus, the Greek historian, in his *Life of Apollonius*, says that "the palaces of the King of Babylon are covered with bronze which makes them glitter at a distance; the chambers of the women, the chambers of the men, and the porticoes are decorated with silver, with beaten and even

18 HISTORY AND METHODS OF

massive gold instead of pictures," and Herodotus speaks of the "silvered and gilded battlements of Ecbatana."

The "exceeding great city of Nineveh," that had a circumference equal to the distance of "three days' journey"—sixty miles—as described by the prophet Jonah, embraced the sites of the palaces of Nimroud, Kouyundjik, and Khorsabad. The discoveries at the two former places by Sir H. Layard, and at the latter by MM. Place and Botta, the French explorers, have enabled us to form a good idea of the decoration and colour of those magnificent palaces, built by the ruthless race of Assyrian monarchs for their own use and aggrandizement; for the usual custom of these kings, like that of other Eastern rulers, was each to erect a palace for himself, and so discard that which had been built by his father or predecessor, so when a new king came to the throne he signalized his accession to power and gratified his pride of splendour by commencing to build, whether he lived to finish it or not, a new palace for himself.

The Ninevite palaces and temples served, not only for the residence of the monarch, or for the worship of the gods, but were also the depositories of the national archives, together with texts and prayers, or invocations to the spiritual divinities, not written on perishable materials, but carved on the lasting stone. These inscriptions were not arranged in any kind of a systematic order, or used in a decorative sense, like the hieroglyphical writing of the Egyptians, but were boldly carved across the sculptured forms of the human figures,



DETAIL OF ENAMELLED ARCHIVOLT : KHORSABAD

bas-reliefs of gods, demons, animals, and chimerical creations evolved from the fertile imagination of the Assyrian artist.

The lower parts of the palace walls were lined with the sculptured alabaster slabs, each slab being from eight to ten feet high, four to six wide, and about one foot in thickness, and on these slabs were carved the bas-relief decoration and inscriptions. The wall spaces above this bas-relief dado were either of enamelled bricks, or tiles, richly coloured, or were of sun-dried bricks, over which a thin coating of plaster was spread, and this surface, in each case, was usually painted with figures and with ornamental designs arranged as borders, bands, or friezes. Although there have been no vestiges of a roof found in any of the ruins of the Assyrian or Chaldæan buildings, it has been conjectured by Layard that the roofs were flat, probably made of cedar, and were panelled or coffered, while M. Place, Loftus, and some other explorers argue that the roofs were vaulted. Layard found a good deal of charred wood and wood ashes in the Ninevite ruins, and from this circumstance, and the authority of some texts, he came to the conclusion that flat roofs did exist, and that they have been destroyed by fire. Tiles, metal, and ivory, inlaid in some cases with lapis-lazuli, were used as panels, probably to fit into the cedar-wood coffers, and even tiles with a curved section have been found, which points out that they may have been made to fit the curved surfaces of vaulted ceilings. In either case the ceilings, as well as the floors, must have been

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decorated with ornament, and the former especially with precious metals, ivory, and coloured tiles, or enamelled bricks. Some floor pavement slabs have been found at Nineveh and Khorsabad, bearing a similarity to the design of the Egyptian ceiling patterns, and such designs suggest what one would expect to see on the flat ceiling of an Assyrian building. Some ivory carvings were found by Layard in the interior debris of the chambers, parts of which were inlaid with lapis-lazuli, and some portions gilded—the gold-leaf still adhering to them—and in one instance a brick was found faced with gold. These ornaments must have formed parts of the decoration of either walls or ceilings. The Egyptian-like designs on the ivory carving were evidently copies of others that had been brought from Egypt, but they had an unmistakable style in the workmanship that proved them to have been carved by Assyrian artists.

The designs of the distemper-painted decoration on the walls, above the slabs of sculptured alabaster, in the Ninevite palaces, consisted usually of representations of the king, followed by eunuchs and warriors, receiving prisoners and tribute, with other designs of animals, divinities, hunting scenes, geometric and floral forms. The colours of these designs were mostly blue, red, black, and white. When these parts of the walls were first uncovered the tempera colours were as vivid and bright as they must have appeared when they were first laid on, but they quickly faded and perished when exposed to the light and air.

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In some cases, where the sculptured slabs were absent, a dado or plinth was imitated by a coating of black paint, as in certain chambers of the palace of Sargon at Khorsabad. The height of this dado varied in accordance with the height of the rooms. The wall space above this black painted dado was usually covered with a simple tint of unbroken colour, or the pure white stucco ground in some instances was left untouched. In several chambers, however, when cleared out by the explorers at Nimroud, the walls were found to have horizontal bands of colour, alternately red, green, and yellow, painted on them, and in some instances, where the sculptured slabs were absent, and also the black painted dado, the lower parts of the walls were treated with alternating coloured stripes.

The sculptured slabs, when uncovered from the mass of rubbish that had hidden them for centuries, showed clearly many traces of colouring, though, unlike the colour treatment of the Egyptian bas-reliefs, they were found to be only partially coloured. Whether this partial colour treatment was purposely done in order to bring these masses in harmony with the illuminated colouring on the upper walls and ceilings, or only to relieve the monotony of their dark grey surfaces, is a matter of speculation. The fact remains that colour has been found on such parts of the sculptures as the eyeballs of the figures, which were painted white, and the pupil, iris, eyebrows, hair and beard, black. The head-dresses of kings and their chief ministers, rosettes as dress ornamentation

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belts, sashes, sandals, earrings, fans, sceptres, studs, weapons, horse and chariot trappings, and other parts where it was thought necessary to give emphasis, were generally painted red, though a bright blue was also used as an alternating colour with the red. These colours, though used sparingly on the sculptures, were as a rule strong and positive in their hues.

Similar colours, as we have seen, were used in the distemper decorations, on the walls above the sculptured slabs, but were purposely paler or lighter in their tints, as suited the general scheme of the colour decoration. These lighter tints would be made by adding white to the positive colours, or would be obtained by thin washes of transparent colour laid on the white stucco ground.

There has been no trace of colour found on any of the isolated or independent statues, or rounded steles that were carved in very hard igneous stones—diorite and basalt—but the smaller statuettes which were modelled in clay and sun-dried, or baked, have been coated over with a uniform tint, generally an azure blue, and in the case of representations of demons, black. The great love of colour, however, that characterized the people of ancient Mesopotamia, and which is the heritage of those who may be called their present-day representatives, through the old Persian nation, found expression in their distemper paintings, enamelled bricks, tiles, pottery, and embroideries, rather than in their sculpture.

MM. Perrot and Chipiez, in their *History of Art*



**ENAMELLED BRICK IN THE
BRITISH MUSEUM**

in Chaldæa and Assyria, argue not without good reasons that Chaldæa was the birthplace of the art of enamelling on bricks and tiles, and that colour was used in the lower country to a greater extent than in Assyria, notwithstanding that up to the date of their writing there had been many more examples of coloured work found in the Assyrian ruins than in Babylonia. They based their conclusions mainly on the facts that a greater use of bricks and enamelled slabs for building purposes was made in a country like Chaldæa, that possessed no stone worth naming, and almost no wood; also that the fragments of coloured and enamelled bricks, which have been found in the ruins of Babylon, are covered with a thicker and much superior kind of enamel than that which covered the Assyrian bricks, which they hold was only a poorer imitation of the Chaldæan enamel.

The decorative motives on the enamelled bricks of Babylonia were first modelled in low relief, before the enamel colours were applied; this considerably enhanced the beauty of the colouring, and rendered them more effective as decoration. On the other hand, the surface of the enamelled bricks of Assyria were smooth and level, the colours being laid on in flat tints. No previous modelling of the ornament was attempted, before applying the colours, if we except the small raised bosses in the centres of the rosettes or daisy-like flowers, which the Assyrians used in great quantities on the upper parts of the walls, and around many of the doorways at Khorsabad, and other places. The recent discovery of the figure of a

lion already mentioned, painted on enamelled bricks, and found in the Kasr-mound at Babylon, provides a further proof that Chaldæa was the cradle of the enamelled tile decoration, and that when Babylon was in the heyday of its greatness, the interiors and exteriors of its temples and palaces must have presented glowing pictures of brilliant and almost sensuous colouring, for it is reasonable to believe the parts of the buildings that were not already lined with the enamel coloured slabs, would hardly be left in the plain white tint of the stucco covering. Painting in distemper and fresco are older arts than enamel painting, it is therefore more than likely that these arts would be largely practised in Babylonia, and that the stuccoed surfaces, which covered the bricks of the buildings, would have their proper share of coloured decoration.

The larger enamelled friezes, or dado pictures, of the Babylonian palaces took the place of the sculptured slabs, which were found in similar situations in the Assyrian halls and chambers, while in both countries, as we have seen, the walls above the dadoes were painted in distemper, on stucco grounds, with figures, animals, and ornament. The ceilings, whether flat or vaulted, of wood or of brick, were enriched with panels of metal, tiles, or ivory, and the colouring of these would in consequence be restful and more restrained than that on the walls.

The enamelled bricks of Assyria are extremely interesting from the peculiar character of their colour arrangements, and afford sufficient proof

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that in the majority of cases the colours schemes adopted were harmonious and refined. In their enamel decoration the Ninevite artists often aimed for a harmony of closely related tones, as distinct from the colouring of their sculptured forms, and more so than the Babylonians, who sought rather for a more decided harmony of contrast. The former kind of harmony was more apparent in their figure and animal motives of decoration, while, on the other hand, we find more decided contrasts of colour on the bricks, which have designs of simple patterns, such as rosettes, palmate forms, guilloches, bands, scrolls, and arcaded patterns. It will thus be seen that the nobler and more important motives of the decoration were treated in quieter and more subtle tones of colour than the purely geometric and less important units of the designs. This reveals a proper sense of the expression of fitness on the part of the Assyrian decorators, for in the higher forms of decorative art there is less obligation to use strong and violent contrasts of colour, while the lower we descend in the scale of decorative forms, and especially when they are used with great repetition, a greater contrast of alternating colours of bright and positive hues is permissible. The colour schemes employed by the Assyrian decorators are generally harmonious, whether in the arrangements of low and broken tones, or of positive hues, for in no case could they be deemed rank or harsh.

The pigments used by both nations in their enamel painting were derived from minerals.

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The opaque, or stanniferous, white was an oxide of tin; the yellow, an antimoniate of lead and some tin, similar to Naples yellow; the blue, an oxide of copper; blue from lapis-lazuli was also used; greens were derived from copper; dark brown, from iron; red is a suboxide of copper. The opaque white made from tin oxide used by the early Mesopotamian artists, was afterwards handed down through the Persians and Arabs to the Italians and modern Europeans. It forms the body of the beautiful white stanniferous glaze of the Persian and Arab tiles and pottery. The Saracens introduced it into Spain, where it was used on the Hispano-Moresque ware, and through the same people it found its way to Italy, where it is seen as the opaque white glaze on the Della Robbia ware and on the majolica faience. The French used it on the Rouen ware, and the Dutch on the Delft variety of pottery. In fact the term "glazed earthenware" postulates majolica, or any opaque tin-glazed ware that has a pale yellow, or reddish-coloured, clay body.

There was no attempt made by the Assyrian or Babylonian decorators to render the colouring of nature on figures of men, animals, or plants. They treated them all in a more or less conventional way, as purely ornamental features, or as arrangements of form and colour, to please the eye, when placed in certain positions as in archivolts, in dadoes, bands, or friezes running horizontally on the walls, or around doorways. A human figure, a bull, a bird, a tree, or a plough might be all represented in one flat tint of colour,

say of blue, or yellow. The tints used evidently did not matter much as long as the decorator attained his desired end of obtaining an agreeable colour finish on the walls of the building.

We have seen that the Egyptians used their strong and warm colouring on almost every inch of their architecture and sculptured reliefs; there was therefore little attempt to use it in a structural sense, but in the employment of colour on their buildings the Assyrians and Chaldæans, as far as we can judge from the discovered fragments and other available data, never lost sight of the decorative and structural value of colour, and consequently they were more sparing and reticent in their use of it than the Egyptians. In their colour schemes as applied to large surfaces the general effect was a cooler arrangement without being positively cold, than that which obtained with the latter nation, owing perhaps to their greater employment of blue pigments than was the case with the Egyptian decorators. Blue was the dominant colour in Mesopotamian decoration, and still is with the present-day art of the Persians.

If we consider the subject of colour decoration on the Chaldæan and Assyrian buildings in its broadest sense, we may come to the conclusion, that when the halls and chambers of the palaces and temples had received their final touches of colour finish, they must have furnished examples of one of the best systems of structural colour decoration, that has been known in the history of architecture.

CHAPTER III

**ANCIENT PERSIAN PAINTING AND
DECORATION**



CHAPTER III

ANCIENT PERSIAN PAINTING AND DECORATION

THE architecture, sculpture, and decorative motives of Ancient Persian art were hardly indigenous to that country, which geographically is known as the plateau of Iran. There is nothing to show that the art of Persia had any roots in the country, for nothing previously existed in the nature of native germs of art before the days of the foundation of the First Empire, under Cyrus (about 530 B.C.). The oldest Persian art is of a highly complex, or composite character, and mainly consisted of a mixture of borrowed forms and motives from Egyptian, Babylonian, Assyrian, and Grecian sources, but skilfully selected and adapted by the Persian architects and decorators to suit the desires and tastes of the native rulers, when they began to build their palaces and tombs for their own glory and gratification.

At Persepolis, Pasargadæ, and Susa, which have been the three chief cities of the empire, mighty palaces have been built by Cyrus, Cambyses, Darius, Xerxes, and Artaxerxes, who employed Assyrian, Phœnician, Egyptian, and Greek architects and artificers in the work of erecting and decorating these edifices with sculpture, enamelled tiles, ivory, and metals. Although the employ-

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ment of foreign artists in Persia is a matter beyond dispute, yet the excellent taste of the Persian kings, or of those who were the chief controllers of their architectural works, has been the means of creating a classical style of art that eventually became national in its character. We say, became national, for in its early stages it was by no means so, seeing that it was not, in its inception, a native creation, or a spontaneous inspiration of her people, like the art of Egypt, Chaldæa, or Greece, but was the growth of exotic forms and motives, brought from the neighbouring and conquered countries, and being more or less engrafted on each other, developed and flowered into luxuriant grace and beauty in Persian soil, under the fostering care and attention of the powerful and wealthy lords of Asia.

Nearly all the art of Ancient Persia was lavished on the palaces, great halls, and tombs of the kings; nothing was wanting in these luxurious edifices, with all their wealth of ornament, to render them magnificent, in order that they might minister to the glorification both in life and in death of the royal princes of a great empire.

Persia as a nation may be said to begin its historic life under the rule of Cyrus, the first king of the Achæmenid dynasty, about the middle of the sixth century B.C. It was in his reign, after he had through successful wars become master of western Asia, that the Persians began to think of building the famous palaces at Pasargadæ, Susa, and Persepolis. The countries of Assyria, Phœnicia, Syria, Palestine, Egypt, and Asiatic

Greece had all in their turn succumbed before the victorious armies of united Persia under Cyrus and Cambyses, and not only did these nations pay enormous tribute to swell the coffers of the Persian kings, but many architects and artists of the conquered countries were induced to enter the service of these monarchs, who could so well afford to recompense them for their labour, but also many sought employment in Persia in order that they might escape from political oppressions, and from the harder life they experienced in their own countries. It is then little wonder that there was so much in the cosmopolitan art of Persia, which reminds us of the decided characteristics of the motives, forms, and colouring of the art of those nations that lay to the west and north-west of the Iranic table-lands. Therefore, in order to properly understand the beginnings and subsequent development of Persian art in its best period, namely, during the sixth and fifth centuries B.C., we shall have to be mindful of the character and forms of the art that then existed in the neighbouring countries, and more particularly of those that lay nearest—Babylonia and Assyria. To these countries Persia was indebted in a greater degree than to Asiatic Greece or Egypt for the models of her architecture, and for the motives and themes of its decoration. In the history of all art development it has generally been found that the art of a young nation has been strongly influenced by that of an older civilization which happens to lie nearest it, and, as the dyer's hand is subdued to what he works in, it is

not a matter of surprise to find that the art of Persia was in a great measure a continuance and development of that of the Mesopotamian schools. But other influences, both foreign and native, modified the character of the original Babylonian and Assyrian styles adopted by the Persians, which in the end produced a new, if somewhat complex, variety of national art. It is clear, however, that through all the ages and changes of dynasties and governments, down to the present time, the whole art of Ancient and Modern Persia has been, and is still, strongly reminiscent of the character, forms, and colour that have been transmitted down from its cradle-land of Mesopotamia. Persia has often been at the mercy of the nations that have invaded and conquered her, yet from her infancy as a kingdom she has kept her individuality, and in a great measure her art, for none of her conquerors have yet succeeded in absorbing the character of her national life, nor the spirit and forms of her art; on the contrary, Persian architecture, decoration, and more especially that of the design and colouring of the applied arts in pottery, tiles, metal-work, and textiles, have been immeasurably far-reaching in their influence on the industrial arts of Europe and of the East.

The architecture of the First Empire was particularly distinguished by the great use that was made of graceful and ornate columns, which supported the wooden beams of the flat and panelled ceiling. This type of architecture was therefore of a trabeated, or pillar and beam variety, but during the Sassanid dynasty (A.D. 226-652),

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after the Greek and Parthian occupations of the country had come to an end, the Persians reverted to the use of another order of architecture, namely, the domed and vaulted style, a type which had been formerly used by the Chaldæans and Assyrians. That domed and vaulted buildings were erected by the Assyrians is proved by a bas-relief found at Nineveh, where groups of them are represented, and Strabo the Greek historian and geographer expressly tells us that "all the houses of Babylon were vaulted." Some remains of these domed and vaulted structures have been found at Ferüz-Abad and at Sarvistan, and one also at Ferash-Âbad, where a portion of the domed roof still exists. The domes are elliptical in section, or ovoid in contour, as also are some of the arched openings of entrances and of window-heads, while some of the latter are circular-headed. In some cases the arched head of the openings turns inwards at the springing points on the tops of the piers and jambs, thus showing an early illustration of the horse-shoe arch that is so very characteristic of Modern Persian and Saracenic architecture. The principal cupolas or ovoid domes of these buildings were supported by resting on the four walls, which formed the square hall or chamber underneath. The centre of the principal façade was occupied by the large ovoid-arched opening, which was used as the chief entrance. This great doorway has always been, and still is, an important feature of Persian and Saracenic buildings, as may be seen in the huge vaulted portals of mosques, houses, caravanserais,

and other edifices of Modern Persia, India, Egypt, Turkey, and Asia Minor, and in fact in all Mohammedan architecture. These domed buildings of the Sassanid period were built of roughly dressed stones and bricks, which were well cemented together with lime mortar. The walls and surfaces of vaults and domes were plastered, and on the interior walls of the building at Ferüz-Âbad, around the circular-headed niches and doorways there are mouldings, with the Egyptian "gorge" as a horizontal crowning feature, and superimposed decoration in low relief. Here we find that which was a very characteristic structural feature of the earlier Achæmenid buildings, as the doorways framing mouldings and the gorge-headed entablature of the palace of Darius at Persepolis, copied in low relief as mere decoration in the vaulted and domed structures of the Sassanid period.

From the circumstances that these buildings were undoubtedly copied from the Assyrian and Babylonian vaulted structures, and their secondary forms of decoration were borrowed from the architecture of the Achæmenid period, we must look upon them as a type of Persian renaissance. Though most of them belong to the Sassanid period, it is conjectured that some of the earlier ones were erected in the previous dynasty, by the Parthian kings; it is indeed more than likely that buildings of this kind existed in Persia from its earliest period, and may have been transferred to Persia from Mesopotamia before the time of Cyrus. The problems of arch, vault, and of dome construction had been worked out, with progressive



THE LION'S FRIEZE: COLOURED ENAMELLED TILES, PERSIAN, FROM SUSA

improvements, throughout Persia and Asia Minor during the Sassanid period, and in later times culminated in the great domed structure of Santa Sophia, built at Constantinople by Greek architects (A.D. 527-565), which served as a perfect model of the Byzantine domed-type of architecture for all later buildings of this description.

The surfaces of domes, vaults, walls, and piers, in the buildings we have been describing, always have presented admirable situations, and large spaces, which lent themselves to decoration and colour, in such mediums as distemper, fresco, coloured tiles, and mosaics. The use of stucco, or plaster, as a superimposed decoration in Persian buildings began, as we have seen, in some of the earlier Sassanid, or perhaps Parthian, domed structures, and was a process which developed to such a great extent as a surface decoration in the subsequent Arabian, or Saracenic, architecture that it has become one of the distinguishing features of the style. This decorative plaster work, it is hardly necessary to say, offered great opportunities for illumination in polychromy, which has been carried to extreme limits by the Saracen decorators.

The most precious remains of Persian painting, as applied to architectural decoration, have been found at Susa (now Shuster), once the stronghold of the Elamites, and for a long time the favourite residence of the Persian kings. It was for a considerable period the most important place in Asia, and is one of the oldest cities in the world. The Chaldæan art of enamelling in colours

on bricks and tiles was carried on and greatly developed by the Susian artists. At Susa M. Dieulafoy, the French explorer, in 1884-1886, found sufficient fragments of enamelled bricks that enabled him to put together and restore the famous designs of the "Lions Frieze" and the "Archers Frieze," which are now in the Louvre, at Paris. The ruins in which these fragments were found have been identified, by the inscriptions, to be those of the palace of Darius, son of Hystaspes. This building was anterior in date to another that had been erected on the same spot by Artaxerxes Mnemon, the latter building having been cleared out and identified by Loftus, the English explorer, in 1851.

The art of the enamellist had its birthplace, as we have seen, in Chaldæa, and as the country of Susiana was geographically a close neighbour of the former kingdom, and like it was almost devoid of stone as a building material, it is therefore a matter of no surprise that the Susians should build and decorate their palaces in the same style, and use the same processes as those which obtained in the older kingdom. The art of enamelling on bricks was known to the Susians centuries before it reached Persia proper, or at least before it was in universal use in the latter country. We mentioned formerly the striking similarity, both in the design and colouring, of the Babylonian lion on the enamelled bricks to that of the lions on the frieze found at Susa, which settles all doubts as to the origin of the enamelled brick and pottery decoration of Persia. The



THE ARCHER'S FRIEZE : ENAMELLED TILES, PERSIAN, FROM SUSA

"Archers Frieze," of Susa is somewhat similar in colour and in treatment to the decoration of the "Lions Frieze," and is extremely interesting, inasmuch as it shows that, although this kind of work has only been found at Susa, it is more than likely that a similar kind of decoration has been used at Persepolis and other places in Persia, seeing that the palaces at Susa and many other palaces and halls in Persia were built for, and used alternately as royal residences by the same Persian prince. Enamelled decoration was not used in Persia proper to the same extent as in Susiana; this was due to the fact that stone was more plentiful in the former country, and consequently we find that the sculptured bas-reliefs and other limestone sculptures, were used in such positions at Persepolis as would be occupied in the Susian buildings by the coloured enamelled decorations. Some fragments of unglazed terracotta animal and figure forms were found at Susa, which may have been used as wall decoration, but not to any great extent. The fragments found had the appearance of being made from soft red clay, which had been pressed in moulds and afterwards burnt in a kiln. Some of these fragments when put together by Dieulafoy represented figures of animals with and without wings, and which he supposed were placed on either side of the entrances of the Susian palaces.

The enamelled tiles or slabs found at Susa have the figures of lions and men modelled in low relief on the surface made up of many slabs, after which the enamel colours would be applied, then

the slabs would be taken down, after their positions in the general design were marked, and would be fired in a kiln in order to secure and fix the colours. Each separate colour in the designs was usually outlined with a raised line in ceramic "slip." This slip line has been the means of protecting and preserving from injury the colours of the hollows which it enclosed, besides giving great value, by means of a separating outline, to the various tones and hues.

The colours used were yellows, yellow-greens, blues, mostly turquoise in hue, brown, and white that was sometimes toned to a pale warm grey. Red as a pure colour was hardly ever used in the Susian enamels, but may have been mixed with the yellows in some cases to give them an orange hue.

Other decorative materials were used besides the enamelled slabs, which greatly enriched and added colour effects to the Persian and Susian palaces, among which may be mentioned the metals of bronze, silver, electrum, and gold. A great use was also made of ivory, various marbles, and richly coloured textile hangings and carpets. We may add that painting in distemper which must have been often renewed, also, plaster coloured in the wet state before it was spread on walls, and the natural colour of bricks, must all be taken into account in the general colour scheme.

Aristotle in *The World's Treatise* says :—" As historians tell us, the pomp and circumstance in the reigns of Cambyzes, Darius, and Xerxes

reached a very high pitch of magnificence and majesty. Report says that the king had his residence at Susa or Ecbatana, behind walls that hid him from the vulgar gaze, within a palace where the glitter of gold, of electrum, and ivory was seen everywhere." We know also from other ancient authorities that the Persians under Cambyses, who conquered Egypt, carried away with them immense quantities of gold, silver, ivory, and precious stones from her temples (as well as the Egyptian artificers), and with this rich booty of material wealth embellished and decorated the magnificent palaces at Persepolis, Susa, and Media, which were built immediately after the Egyptian conquest.

We have evidence from the bas-reliefs and the enamelled tile designs, supported by the authority of historians' texts, that the Persians used richly coloured hangings, portières, canopies, and carpets, which were employed not only to shade off the rays of the sun, and as furnishings to the palaces, but also by means of their colour bestowed the finishing touches to the decorative beauty of the royal edifices. The floors of the palaces were composed of sectile pavements of various coloured marbles, and in design were not unlike the patterns of woven textiles, from which they may have been copied, but on the other hand the designs of the more elaborate hangings, of the patterns on the embroidered dresses of kings, and of the horse-trappings were similar to those of the Assyrian embroideries, which consisted of the same motives that were represented on the stone bas-reliefs, such

as rows of walking lions, processions of warriors, hunting scenes, floral forms, and conventional ornament. The principal, or more common theme, however, was the design composed of two figures, chiefly of griffons, in the Persian textiles, one of which was placed on either side, facing each other, and in the centre between them appeared a conventional tree form. This design was an adaptation of the two divinities offering homage to the sacred tree which is so often seen in Assyrian art, a motive in which may be seen the origin of all the important pattern of textile design. The central form is usually a tree, plant, or flower, sometimes a vase of flowers, at other times the vase only, or even any kind of central object; but invariably there are similar objects or figures on either side, which may be each a divinity, demon, griffon, quadruped, or bird form. This design may be traced as the chief motive in diaper patterns of woven textile hangings from its first germ in Assyrian art down through the Persian, Arabian, Byzantine, Sicilian, Palermitan, Italian, French, to modern English designs, especially those of silks, velvets, cretonnes, and carpets. The beautiful colouring also of both mediæval and modern Persian, Turkey, and other Eastern carpets and rugs had its common origin in the Assyrian and Ancient Persian textiles and embroideries.

In the first chapter of the Book of Esther we read, that the "King Ahasuerus (the Xerxes of the Greeks), sat on the throne of his kingdom which was in Shushan, his palace," and, in "the

third year of his reign he made a feast unto all his princes and servants; the power of Persia and Media, the nobles and princes of the provinces being before him." And that "he showed them the riches of his glorious kingdom." And afterwards he made another feast, this time to his people, "both great and small, seven days, in the court of the garden of the king's palace, where were white, green, and blue hangings, fastened with cords of fine linen and purple to silver rings and pillars of marble; the beds (couches) were of gold and silver upon a pavement of red and blue, and of white and black marble. And they gave them drink in vessels of gold (the vessels being diverse one from another) and royal wine in abundance, according to the state of the king."

The writer of the Book of Esther must have been an eye-witness of these feasts, and of the glories of the sumptuous palace which he describes. We can form an idea from his description, and also from other historians' texts, together with our knowledge obtained from the fragments of the architecture and decoration which have been brought to light in recent years, that the royal houses of the Persian princes could hardly have been excelled in any age for the magnificence of their architecture and furnishings, and for the richness and splendour of their decorative colouring.

CHAPTER IV
GRECIAN AND ROMAN COLOURING
AND PAINTING

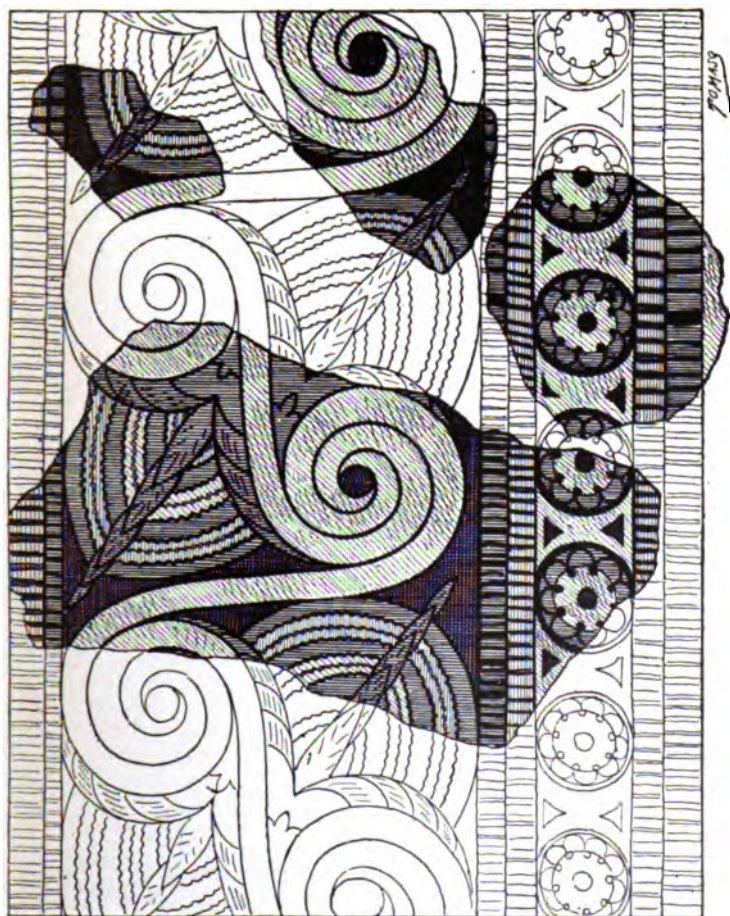
CHAPTER IV

GRECIAN AND ROMAN COLOURING AND PAINTING

THE polychromatic decoration of the Greek temples in the Classic period was a development of the earlier colour application to the buildings of primitive Greece. Many fragments of painted plaster and other evidences of colour decoration from the halls and palaces of Tiryns, Mycenæ, and Thera have been brought to light during the excavations carried out by MM. Schliemann, Dörpfeld, and others in 1885. It has been found that not only the *Megarons*, or principal reception halls, but even the private apartments of the palaces had their walls, ceilings, and their floors also painted in coloured fresco. Both outer and inner walls of these buildings, whether the materials of their construction were of wood, stone, or of sun-dried clay, had their surfaces covered with a coating of clay over which a finer coating of plaster was laid, on which, especially in the case of the interior walls, the coloured decoration was executed in fresco, that is, while the plaster was still in a wet or damp state. On the exterior, and sometimes on the interior walls and floors the plaster was coloured in the body before it was applied, and this was laid on sometimes in alternating bands of different colours, and sometimes in very large areas of single tints.

The floor decoration consists usually of carpet-like patterns of linear ornamentation.

The colours used in the fresco decorations did not exceed five in number, namely, white, black or dark brown, blue, red, and yellow. The blue is of a bright hue, the red of a chalky kind, but of two distinct shades, light and very dark, the lighter shade being used for grounds and the darker for the ornamental patterns. In addition to the gay fresco tints employed by the primitive Grecian house painter, the structural decoration of the Mycenæan and Tirynthian palaces was rendered more complete by the aid of different coloured woods, gold, silver, electrum, and bronze metals, limestone, green schist, porphyry, and alabaster, as well as a vitrified blue paste, all of which materials have been used in the decorations of the palaces, as testified by the fragments and remains that have been found in the ruins of the edifices. Though the decorator employed his colour chiefly on the plastered surfaces, he did not hesitate to paint in colour the limestone, or the wooden parts of the structure, if he found it necessary in order to harmonize such parts with the brighter colouring of the frescoed work. The portions that appeared white in the wall decorations were the untouched grounds of the white stucco finish, and were not painted in a solid body; some greenish tints have been found on the painted plaster fragments, but these have been due to the exposure of the original blue and yellow colours to the action of damp, for no genuine green has been found on the archaic fragments.



FRAGMENT OF DECORATION, FROM TIRYNS

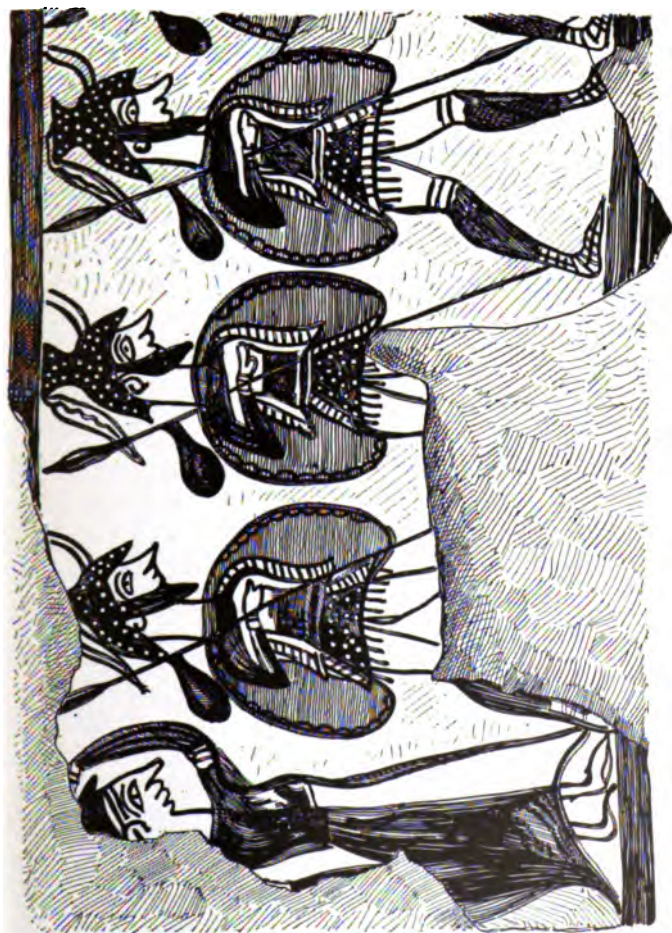
The forms and motives of the painted ornamentation used by the primitive Greeks were few, and of a simple character, most of which, though having distinctive features of their own, were more or less derived from the types of ornament commonly found in Egyptian and Assyrian art. Volutes, spirals, chevrons, rosettes, or daisies formed the staple kind of their ornament, and all these were arranged in bands, or in diapers. Plant and shell-fish forms were also used, and sometimes figures, animals, and other designs of fanciful creation, crudely drawn, but painted with considerable directness of execution. The more geometric varieties of ornament, however, were used with greater frequency, of which spirals and rosettes appeared in endless repetition.

The use of a coloured and decorated dado and the division of the walls above into panels, with surrounding borders or bands of colour, was common in the wall treatment of the early Grecian interiors, and this system of decorative colour application may be regarded as the origin of the more elaborated, but similar method of setting out by subdivisions the whole field of the walls into dados, panels, and friezes. This system of space-divisions was followed out in later times in the interiors of the Greco-Roman houses, the best examples of which are those of the Pompeian and Herculaneum wall decorations. Not only were the panelled spaces, borders, bands, and fillets painted in strong tints of contrasting colours, but the superimposed decoration on these divisions was equally treated in the brightest colours at the

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command of the Mycenæan decorator. Our knowledge of the primitive Greek polychromy has been further enriched by the discoveries made by Dr. A. J. Evans, who with Dr. D. Mackenzie and Mr. Theodore Fyfe, the architect, excavated the ancient palace of Knossus, in Crete, in the years 1900-1902, where they found many remains of fresco decorations, consisting of fragments of painted plaster. In the entrance corridor of the palace were found the remains of a great processional wall painting, where figures of men were represented, dressed in long robes, and of boys, or youths, carrying vases of tribute, etc. One fine example of a male figure, painted life-size in fresco, was part of the internal decoration of the Propylæum. Other subjects were, wingless griffins with peacock's plumes, also remains of frescoes showing zones of figures, and others showing groups of warriors, male and female figures engaged in lively conversation. In addition to the remains of the important figure work there were found many examples of purely ornamental designs, composed of running bands of spiral ornament, rosettes, interlaced fret patterns, chevrons, tooth-ornament, and triglyph motives on painted plaster. Fragments of ceiling decoration in modelled and coloured plaster were also found, consisting of the spiral and rosette ornamentation, all of which motives, both in design and colouring, bore a strong family likeness to those of the Mycenæan palace decorations.

Apart from the love and lavish use of brilliant colours, which characterized the primitive Greeks,



DECORATION ON FRAGMENT OF A CRATER, FROM MYCENÆ

in common with the people of all sunlit countries, both in their dress and decoration of their houses, it may be mentioned that they used paint also as a protective covering to wood and plaster, when the former was not sheathed in plates of bronze.

This protective paint, which was most likely a wax composition diluted with naphtha and applied with the brush, was used extensively on the wooden entablatures and other parts of the Mycenæan palaces and houses, the wooden architecture of which was the prototype of the later Greek Doric. The colours on the exteriors of the wooden edifices were therefore used in two senses, namely, to preserve the wood from the weather, and to please the eye by their strong colour harmonies. The most positive hues at the command of the decorator were used, for rarely, if ever, has there been found among the fragments of coloured decoration any examples or arrangements which could be described as low-toned, or subordinate schemes of colour harmony. This practical and at the same time artistic use of colour on the wooden entablatures of the Mycenæan structures was never lost sight of by the architects of the Doric temples, when subsequently stone took the place of wood as a building material. We shall find that the "protective" painted decoration of the wooden structures was copied more or less faithfully on the later stone buildings, just as the original wooden construction was copied in stone; and when in the later Classic period the Doric temple of the Parthenon was reared as a sublime

structure of white and glistening marble, its severe beauty was enhanced by the discreet use of a veil of traditional colouring, not sufficient to obscure, but on the other hand, just enough to make clear and intensify the manifold charms of its proportion, constructive features, and the more delicate beauties of its carved decorations.

Remains of colour have been found on mouldings, entablatures, and other parts of many of the earlier Doric temples at Selinous, Ægina, and Pæstum, as well as on the Propylæa and Parthenon at Athens. Traces of colouring, though in a lesser degree, have been found on the ruined edifices of the Ionic order, on such temples as those of Halicarnassus, Priene, Didyme, Ephesus, and Athens. We are indebted to the researches and examinations made in the light of this matter by Hittorf, F. C. Penrose, Maxime Collignon, O. Rayet, Newton, and others, who have given much attention to the subject of Greek polychromy, and from the result of their labours we are enabled to glean much valuable information, which will enable us to trace with some clearness the development of Greek colouring.

The colours used by the Greeks on their edifices were prepared in a wax medium and known as "encaustic," so called because that in order to make them flow evenly under the brush, or spatula, heat had to be applied, or when painted on the warm marble or stone the hot sunshine would melt the mixture quite as effectively as any application of artificial heat. Encaustic or wax-painting will be more fully treated in a separate chapter



FRAGMENT OF CEILING SLAB : TOMB OF ORCHOMENOS

in this volume. The great advantage of using encaustic colours consisted in the pigments being rendered waterproof, and also the natural hue of each pigment would be extremely lasting, as it would be locked up in the wax medium and therefore well protected from the bleaching effects of the sunshine and atmosphere. It is owing to this wax medium, and also to the circumstance that the Greeks usually carved, or incised, their patterns before painting them, that any traces of colour have remained on the edifices through the past ages to the present day. On many parts of the structures the delicate incised lines of the patterns, and the good preservation of the marble underneath the spaces, formerly occupied by the decoration, were the proofs, clear enough, that on such places the encaustic paint had been applied shortly after the building had been finished.

About the time of Pisistrates (*circa* 500 B.C.), the columns of the temples appeared to have been painted a pale yellowish transparent colour, which was spread over the stucco covering of the stone, and Penrose, in *The Principles of Athenian Architecture*, says that although it is a matter of conjecture how far the plain surfaces of the corona, architrave, and columns of the Parthenon were painted in flat colours, still he found that the columns of the west front had been coated with a peculiar yellow tint which was not the result of the oxidation of iron contained in the Pentelic marble, and that this slight yellow tint was probably applied to reduce the high light of the marble when it was new, without obscuring

its crystalline lustre, but to bring it into harmony with the brighter colours introduced elsewhere on the building. It is not known whether the general practice was to colour the capital, but M. Collignon mentions the case of the palmate leaf decoration, which must have originally existed on the capitals of the portico columns of the temple at Pæstum, where the salient painted portions were in a good state of preservation, while the unpainted portions had been decayed and corroded by the action of the wind from the sea.

From the traces of colouring found on the Doric temple of Æphaia at Ægina, it has been proved that the architrave was painted red, of a uniform tint. This served as a ground for the gilded shields on which votive inscriptions were placed and executed in metallic letters. Above the architrave the frieze presented an alternation of triglyphs and metopes, the former being painted blue, while the ground of the sculptured metopes was red, which relieved the sculptured decoration, the latter being left the natural marble colour, only that the accessories of the figures were in gilded bronze. The mutules of the cornice were painted blue. The tympanum of the pediment was also blue, serving as a background to the sculptures, which were possibly tinted a pale yellow. The surrounding mouldings were decorated with leaf patterns in red and green, or red and blue, and the gutter, or crowning member, received a similar treatment of lively colouring. We have here an idea of the archaic polychromy with its positive tones, which was in accordance with the

colour system of the primitive Greeks, and also in perfect harmony with the austere lines of the old Doric order.

When the proportions of the temple became more elegant, when marble was substituted for the commoner stone, and the work accordingly demanded more finish, the colours were used more sparingly.

As regards the colouring of the Parthenon, Penrose found faint traces of red, blue, and green on the ogee, hawksbeak, and on some fillet mouldings. The hawksbeak moulding and the decoration on it, which is found in Doric architecture, are borrowed from the Egyptians. The great simplicity of the broad Doric mouldings was no doubt an intentional feature in their design, for the purpose of receiving the finished colour decorations. On the edges, and soffits of the mutules of the Parthenon traces of a deep blue colour were found, while the soffits and vertical spaces between the mutules were painted red; this colour also extended to the narrow fillet underneath the mutules. The soffit of the cornice at each angle of the building was in each case adorned with painted honeysuckle ornamentation. Positive traces of a well-preserved deep blue colour were found inside the channels of the triglyphs, and other but fainter traces of the same colour on the face above the triglyphs. A capital of one of the northern antæ has preserved some traces of colour, a restoration of which, according to Penrose, is given in his work on Athenian Architecture. No authority for the gilding has

been found in this case, but it has been introduced in this illustration by Penrose, as it must have been necessary in order to give the required harmony, and we know from the mention made of gilding in decoration by the Greek authors that it must have been used on the Parthenon, as on other Greek temples. Some authorities are inclined to the belief that the background of the sculptured Panathenaic frieze was painted blue, but there is no positive evidence of this.

Many fragments of the ceiling of the Propylæa at Athens have been found, on which distinct vestiges of colouring still remained; the blues, especially in some cases, were quite positive, red, and bright green were also common colours. It will be remembered that a decided green was in common use in the Classic period (a colour that was unknown to the decorators of Archaic times), and was probably derived from a copper base. All the colours used in Classic Greece were much brighter, and more positive in hue than those of the Archaic period.

The soffits of the coffered panels in the ceiling of the Propylæa were ornamented with stars and conventional flowers in various colours. The plinth of the central hall is composed of black marble, and the wall above is white, on which subject paintings may have been executed, but if they ever did exist, no traces have been found of such. Analogous colouring to the Athenian methods has been found on the Lycian tombs and on some marbles from Lycia, now in the British Museum.

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The Grecian Ionic order of architecture had also its proper scheme of colour decoration. This order above all demanded a discreet and refined polychromy. We can understand that the delicate leaf ribs of those exquisite marble carvings which run like lace around the neck of the capitals and under the voluted abacus would be obliterated under a coating of paint. Colour was therefore sparingly applied to underline them, in order to give them their proper value on the whiteness of the marble that would be inundated with the bright sunshine. The colours used here, as in the Doric order, were lively tones of red and blue to which was added the lustre of the gilding. That gold leaf was used by the Greeks in the decoration of their buildings is proved by an inscription of the 92nd Olympiad, about 410 B.C., relating to the building accounts and expenses of the Eretheion, where mention is made of "a hundred and seventy leaves of gold, one drachm to the leaf," which were used to gild the eyes of the volutes of the capitals, and the floral designs on the ceiling coffers.

We must be mindful that here, in the Ionic order, as in the Doric, the colouring was not an absolute system, but was determined in accordance with the variations of taste, and the traditions of the Schools. From examinations that have been made of the ruined Ionic edifices of Priene, of Didyme, of Ephesus, of Halicarnassus, and of Athens we can form an idea of the measure of polychromy that is associated with the Ionic order. Two colours, above all others, red and

blue, have been in common use, the first was reserved for the backgrounds and parts in shade, to which it gave value by its intense tint; sometimes red was also employed to underline the darts between the eggs on the carved ovolo moulding, and those also on the *rais de cœur*, or ogee moulding. Blue was applied to the surfaces that were more in light, as on the eggs of the ovolo moulding, which showed in full light, while the more salient lines and edges were left white. By this colour treatment a harmony was obtained that was at once discreet and gay; the shaded parts of the hollows warm and transparent, the blues softened by the bright sunshine, while the fine and delicate carving of the more prominent edges and outlines conserved in all its purity the whiteness of the marble.

The acquired knowledge of Greek polychromy up to the present, clearly proves that it conforms to the severe requirements and taste of the Greek genius, so contrary to our modern tastes and prejudices as to the division of the arts, for it shows to what point in the mind of the Greeks the arts blended in the finished building. If we are inclined to think that the Greek colouring was too strong, or too barbarous, we must not forget that it was the conditions of the climate which rendered such colouring necessary. A uniformly white building in the glare of the sunshine would not only be blinding to the sight, but all the delicate carvings would be monotonous or would hardly be seen if they had not been relieved, or brought out by the aid of colour. Generally

speaking the mouldings in the Doric order were decorated with painted ornament, while those of the Ionic were carved, so that in the latter case the colour was used in a more discreet and restrained sense. Colour was seldom employed on buildings of the Corinthian order.

GREEK PAINTING.

Although no remains of Greek painting have been found either on the interior walls of the temples, or in private houses, yet there is evidence enough from the historians' accounts that the Greeks practised the art of painting on walls, panels and canvases, and the names have come down to us of such Greek painters as Apollodorus of Athens, Zeuxis, Parrhasius, the founder of the Ionic School, and Eupompus, who with Pamphilus founded the Sicyonian school. The latter school was brought to its climax of perfection by Apelles, who was Court painter to Alexander the Great. Apelles painted decorative pictures for the Temple of Æsculapius, in the isle of Cos, and for the Temple of Diana, at Ephesus, as well as many other portable pictures, the greatest of which was his celebrated picture of Venus Anadyomene.

Polygnotus of Thasos was another celebrated painter, who decorated the public porticoes of Greece with subjects illustrating the Trojan wars. He was first trained as a sculptor, a training which helped him considerably as a designer of monumental painting, for he was essentially a great

decorator of wall spaces. He was noted for his "disposition of delicate drapery," and it is related that he placed his figures, especially in the more distant parts of his compositions, in rows over each other, with no attempt at perspective. Polygnotus was a great favourite with the Athenians, and winning their confidence and respect he was entrusted with the work of decorating many of the new temples which were erected in Greece immediately after the end of the Persian wars—449 B.C.—when Greece "rose up in beauty from the ashes of the Persian fires."

Apollodorus, who flourished in the latter half of the fifth century B.C., was, according to Pliny, the first painter who painted easel pictures, and is also credited with the invention of light and shade. Timanthes, a contemporary and rival of Parrhasius, painted the "Sacrifice of Iphigenia," a copy of which was found on a wall at Pompeii. Pausius is mentioned as the first encaustic painter, and was also noted for the foreshortening of his figures. Nikias was a painter who was employed by Praxiteles, the sculptor, to colour his statues, and has been named by Overbeck as one of the Greek artists whose original works were often copied on the walls of the interiors at Pompeii. Protogenes, Aëtion, Euphranor, Timonachus, and Theon are the names of other notable Greek artists whose works have been freely copied in the wall decorations at Pompeii and Herculaneum.

Besides the paintings found in the houses of these two provincial outposts of Greek civilization a few other examples may be mentioned, which



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were executed about this period, and which are either of Greek workmanship or influence, namely : the pictures in the garden of the Villa Farnesina, which represent scenes from the *Odyssey*, the landscape, with birds, of Livia's Villa at Prima Porta, the "Aldobrandini Marriage" on the Esquiline, the pictures in the house on the Palatine, the painted tombs at Pæstum and Etruria, and the important ceiling decorations of the Baths of Titus. The vase paintings and those on the Corinthian pinakes afford further proof that the Greeks were consummate masters of the arts of design and painting, as they were equally so in sculpture and architecture. The Greek wall-paintings were quite likely to have been as definite and clear in their composition as their relief sculpture and their vase painting, for confusion and vagueness were foreign to the Greek artist's mind. A small collection of Greek pictures in the Museo Borbonico, in Naples, are good in drawing and composition, beautiful in colour and definite in the precision of their execution. These pictures are small, but they enable us to form a good estimate of what the larger decorative wall paintings must have been like.

The Greek authors when speaking of painting only mention the large paintings that were executed on the walls of public buildings, and a few of the portable or easel pictures. We have little or no evidence as to the general colour schemes of the important edifices, or the character of the ornamental painted decoration, but fortunately we can judge from that which has been

preserved in the interiors of Pompeii and Herculaneum how the Greek interiors must have had also their elaborate schemes of coloured decoration which embraced the representation of figure subjects, ornamental, and landscape compositions.

The artists of Pompeii and other Roman cities formed themselves into guilds, and the master, or chief artist, of each guild was a Greek, who was responsible for the design of the work, and who executed the more important parts. It is well known that many of the designs for the wall paintings were copies of Greek examples, although the greater part of the grotesques, arabesques, and other ornamental details are quite likely to have been the work of the native Italian assistants. In connection with this kind of decoration it is interesting to note that the painter Antiphilus of Egypt is credited by Pliny as the originator of *Grylli*—the grotesque combinations of animal, human and foliated forms of ornament. Pompeian art may therefore be classified as Greco-Roman. At Herculaneum four monochrome paintings were found that were signed by Alexandros of Athens.

We have already mentioned that the Pompeian method of decoration had its origin in that of the primitive Mycenæan interiors, as the system of dividing the wall-spaces were almost identical in both cases, only that the Pompeian decoration illustrates a more amazing wealth of idea, is richer in colour, is more elaborate in the space-divisions, and displays a greater power of artistic skill than is found in the work of the primitive



MURAL PAINTINGS IN FRESCO FROM HERCULANÆUM

Greek decorator. It is a far cry from the art of Mycenæ to that of Pompeii, but at the same time the latter is only a development of the former, and although the links between the two are missing, it is fairly proved, from what we have seen, that they must have existed in Greece during the Archaic and Classic periods of its history.

The wall spaces at Pompeii are usually divided into panels or fields, either by painted borders, lines, or bands, or by an elaborate system of painted architecture, where columns were represented of a very attenuated, but graceful appearance. These columns often carry airy and fantastical superstructures through which perspective glimpses of landscape and distant buildings are seen. Many of the enclosed panels are occupied either by single decorative figures, or by compositions or scenes, both of realistic and idealistic types, such as children playing, animals, satyrs and fauns, landscape, objects from still life, also idyllic, historical, and mythological compositions. Some of the floating, or lightly-poised female figures, clothed in delicate draperies, and also the figures of Cupids, that are painted in the centres of the panels, for charm, grace of pose, and movement, as well as for directness of execution in the painting, have never been equalled in decorative art. In the later period of Pompeian art the painted decoration is characterized by the increased employment of fantastic and grotesque motives, coarse in execution, bad in drawing, and garish in colour, which clearly showed that the Greek influence was waning, that the artisan

had occupied the place of the artist, and finally, that the period of decadence had already set in.

Marble and mosaic were also used as decorative materials in these interiors, although in Pompeii there was an extensive employment of veined and coloured plaster, or stucco, which was made to imitate marbles. Mosaic, however, was extensively used both for the floors and for wall decoration. The mosaic pictures were wonderful examples of craftsmanship and were undoubtedly copies of Greek paintings. The well-known fragment of the great mosaic "The Battle of Issus," representing the victory of Alexander the Great over the Persian king, Darius, is an excellent piece of workmanship, and from all accounts is a copy of a Greek picture which the Emperor Vespasian brought to Rome. It was found in the House of the Faun, at Pompeii, in 1831, and is now in the Museum at Naples.

The colours used in painting at Pompeii were found to be of mineral extraction; white of chalk, or lime, yellow ochre, red chalk, minium, and vermillion, as reds, blue from oxidised copper, burnt ochre for brown, and charcoal black. The greens were mixtures of blue and yellow. A rosy purple was sometimes used, which was probably derived from the sea-snail, but this was only employed as a tempera colour, or in the encaustic paintings. The decorative paintings on the larger wall spaces were executed in buon fresco, but the more important figure compositions were done in *fresco-secco*, or tempera, a space being left in the centre of the wall panels for these paintings



WALL PAINTING FROM POMPEII

which was afterwards filled in with a plaster ground, in which marble dust was mixed with the chalk or lime, so as to form a hard and firm surface for the tempera paintings. Both fresco and tempera paintings were covered with a solution of wax, or with a resinous varnish in order to fix and preserve them.

Pompeian colouring is generally bright and lively with strong contrasts. Black, white, red, blue, yellow, and green are effectively used in their full hues and in a great variety of combinations. It may be reasonably imagined that such colouring appeared garish and almost barbarous, as it certainly would in a medium light, but the Pompeian interiors were not well lighted, and this system of colouring would naturally in such situations appear much subdued, and therefore was extremely appropriate for dark interiors.

In regard to the architectural polychromy of the Ancient Roman temples and other public buildings of Ancient Italy apart from the Pompeian examples, the data we possess is very meagre. Roman art was in its inception an application of the Etruscan, to which it owed the adaptation of the round arch in architecture, but about the time of the Scipios, about 200 B.C., the Romans cultivated a taste for the Grecian forms of art, and subsequently Roman architecture became merely a mixture of Etruscan and Greek forms in its æsthetic aspect; but on the other hand it expanded on the lines of a practical materialism, which developed in accordance with the new requirements of such a powerful and progressive nation.

The designs of the Roman buildings were characterized with a magnificent impress and grandeur, which reflected the might and unlimited ambition of the Roman people. The expression of magnificence in the Greek temples was due to their beauty of style, and not to their size, for they were small in comparison with Roman buildings, but in the latter the same effects were produced by their vaster proportions and greater dimensions. The Romans used the Grecian column in some of their buildings in conjunction with the Greek entablature and pediment, but more often only as a decorative feature rather than an essential and vital element of the construction, and when the column was frankly employed as a distinctive feature, selected the more ornate Corinthian as the type of their choice, rather than the Doric or Ionic. The two latter were seldom employed by the Romans, possibly from the reason that simplicity and plainness did not appeal to the Roman mind so effectively as the wanton luxuriance of the Corinthian capital. But this capital in common with all the sculptured decoration and carving which the Romans borrowed from the Greeks, deteriorated in their hands from the original purity of style, when they sought to obtain richness of effect by overloading these architectural forms with an incrustation of heavy and lifeless ornamentation. Although this corresponded to the desire of the Romans for magnificence and splendour, we have to acknowledge that they reached a high point in construction, and in the technics of building. This was due to their skill-



WALL PAINTING FROM POMPEII

ful use and adaptation of the round arch, which became the most distinctive expression of the Roman style. Consequently we find that the two methods of construction, namely, the Grecian column and the Etruscan arch, are combined in most Roman buildings, but the round arch, from which the simple arch-vault and cross-vault are developed, is the essential element which mainly constitutes the most ingenious and original expression of Roman architecture.

The use of the arch and the various applications of semicircular and segmental lines, especially in later Roman work, led to the modification of the internal architecture, where the ceilings of many buildings were constructed on the cylindrical arch, or barrel-vault, the cross-arch, and the dome-arch. These arches were generally ornamented with sunken moulded panels, carved with ornamental decorations, sometimes in marble, and in some cases they had bronze decorations attached in the centres of the panels as in the Pantheon at Rome. In some cases the vaulted roofs were entirely painted with coloured arabesques, and with small figure medallions, but without having moulded panels. Among the latter may be classed the decorations of the Baths of Titus and Diocletian, and those of the palace of the Cæsars on the Palatine Hill, all of which were similar to the "grotesques" of Pompeii and Herculaneum. As regards the more important figure compositions and landscapes, that we know must have decorated the walls of the Roman buildings in the period of the Empire,

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we can form a good idea of their importance from three sources, namely, the Pompeian paintings, the earliest paintings from the Catacombs (which were likely to be modified copies of the motives and composition of older Roman frescoes), and from descriptions of such work as related by Pliny and other historians.



WALL PAINTING : ANCIENT ROMAN, FROM POZZUOLI

CHAPTER V
LATER ROMAN ART

CHAPTER V

LATER ROMAN ART

ROMAN art was already in its decadence before the end of the Empire, and Christianity itself, together with the invasion of Italy by the Germanic races, were the chief factors in the transformation and decline.

In the beginning of the Christian era art was too much impregnated with Paganism to find favour in the eyes of those who had embraced the new faith, though it must be said that in many instances the work of the early Christian artist was strongly influenced by the form and technique of Roman art. At first, however, as the outcome of the early Christian's antagonism against heathenism and all its works, symbolic forms, cyphers, and monograms were used instead of figure decoration, lest the followers of Christ should see anything that would remind them of the idolatrous similitude of the heathen gods; but later on, when the principles, doctrines, and practice of the new religion were more firmly established, it was found by the teachers in the Church that the pictorial representation of sacred personages, and of scriptural subjects and scenes, would in some measure help, rather than retard, the spread of Christianity. Accordingly we find that single figures representing

Christ, and the saints, apostles, and prophets, and also allegorical scenes were depicted, which bore a spiritual relation to doctrinal truths. Also sacred and historical events from the Old and New Testaments were represented, and treated in a symbolical manner; for example, the Lord's Supper was symbolized by a representation of the Miracle of the Loaves and Fishes, and of the Water turned into Wine; the Resurrection by the Raising of Lazarus, and the Deliverance of Jonah; Christ as the Guide of the Church, by a figure of the Good Shepherd with the Lamb upon his shoulder. The Church was typified by a ship carrying people, or souls. Christ was also represented by the Lamb that was sacrificed, and sometimes by the figure of Orpheus, with his lyre, surrounded by animals, signifying His power of drawing all men, and nature, unto Him.

We see in this early symbolism the fundamental essence and forms of all subsequent Christian art. These early attempts of Christian iconography were represented on the walls of St. Callixtus and other places in the Catacombs at Rome, some of which are still in existence.

The new religious requirements of the early Christians demanded another kind of building than that of the temples which served the older Pagan religions. At first they were obliged to hold their services in the Catacombs and underground crypts, where the altar was erected over the tomb of a saint, or martyr, but when persecution abated, and they were permitted to worship openly, and to build churches, the early Christians found in

the existing basilicas, or "kingly halls," a type of building which might be adapted or copied in the designs of the new buildings which they deemed suitable for the devotional meetings of their increasing congregations. The Roman Basilica was therefore, according to many authorities, the model on which the early Christians erected their buildings, consecrated to Divine worship, and the name, "basilica," was henceforth adopted as that of the early Christian type of church in Italy.

The long accepted theory, namely, that the ancient Roman basilica afforded the model on which the early Christian churches were built, has been questioned by some German and other archæologists, in recent years. These authorities argue that the Christian basilica was merely an elongation, or enlargement of the proportions, of the ordinary Roman dwelling-house, where, at first, the members of the new faith assembled together for worship. If we accept this theory, we must at the same time admit that both the heathen and Christian basilicas had much in common not only in plan, but also in the ornamental details of the architecture.

Gradually, certain changes and modifications took place in the plan and design of the early Christian basilicas, due more to the ritual and requirements of the Church service than to artistic development, though in the main, the beautiful simplicity of the principal architectural features has, as a rule, been preserved in the churches of this type in Italy, so that hardly any change is noticeable in the basilicas built from the fourth

to the tenth centuries. The principal modifications in the plan consisted in the addition of a transept, which was in later buildings introduced in front of the apse and extended some distance on either side of the main structure, thus giving the cross-like form in plan; and another addition was the narthex, or scourge, which was divided by a barrier from the main building, at the west end entrance, and was equal in length to the whole frontage. This was the place reserved for penitents who had regained the right of access to the sanctuary. At the east end, generally in the transept, stood the altar, frequently covered by a baldachino which rested on four pillars; in front of the altar, at the end of the nave, was a central space, enclosed by a low marble panelled screen, which was occupied by the lower clergy who formed the choir, hence the name of choir given to the place itself. A marble pulpit, called the ambone, was placed, one on either side of the choir, and from one the Gospel was read, and the Epistle from the other. These ambones were often richly decorated with mosaics. Behind the altar, in the middle of the tribuna, was the *cathedra*, or seat of the bishop, raised on steps, and around the semi-circle on either side were the seats reserved for the higher ecclesiastics. The rafters of the roofs were sometimes left open, without a casing, but in other instances they consisted of beams with a flat panelling, and were invariably richly decorated with ornaments in colour and gold.

The columns of the Christian basilicas, which divided the naves and aisles from each other, were,

especially in the earlier buildings, as they also were in many Byzantine churches, generally of the Corinthian order, and were actually taken from the ruined temples of antiquity, and, as may be imagined, they were often of dissimilar dimensions, differing in material, colour, and workmanship; in fact, the builders of the early Christian period simply used the heathen temples as quarries from which they obtained the greater part of the costly marbles, which were ready-made building material, and which they did not scruple to use in Christian buildings.

The crowning glory, however, of these churches was their splendid mosaic decorations, for the embellishment or ornamentation of the basilica corresponded with its architectural form, inasmuch as it did not consist of plastic sculpture, but of surface decoration in painting and mosaic. The apse, which formed the east end termination of the church, was considered the most important part of the building and always received the principal mosaics, although the side walls of the nave, and the triumphal arch, which divided the nave from the transept, were generally decorated with mosaics or paintings. The mosaics had blue or gold grounds, and the figures, especially in the apse, were large in scale, with bold and simply designed drapery, the whole effect resulting in a monumental dignity of colour and composition, thoroughly in harmony with the architectural lines of the building.

CHAPTER VI

MOSAICS

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MOSAICS

FROM the fourth century, or even earlier, mosaic became the chief decoration of all religious edifices, but all the picture subjects of these mosaics were not of the sacred order, for we find that from the date of the early Christian buildings, through many subsequent centuries, the influence of antique art both as to subject and technique is clearly apparent. Even as late as 1516 Raffaele designed the mosaic decorations of the Chigi Chapel in the Church of Santa Maria del Popolo at Rome, which were carried out by Luigi della Pace, and which consisted of representations of the heathen deities, such as Mercury, Venus, Apollo, Mars, Jupiter, etc., symbolizing the planets, and dominated by a figure of the Creator, surrounded by angels, a strange mixture, or association of heathen gods with angels and the Eternal Father of mankind.

Among the examples of the oldest mosaics in the churches of Italy, are those on the wagon-roof of the ambulatory of Santa Constanza, near Rome, and those on the apse of Santa Pudenziana, at Rome, both of which date from the fourth century. The mosaics of St. Constanza belong to the school of ancient art, and consist of representations of

little genii, animals, and birds, disporting among branches and tendrils of the vine, other little figures being engaged in treading out the wine from the grapes in the wine-presses, while others are driving bullocks harnessed to wagons. The whole compositions are in natural colours on a white ground and surrounded by ornamental borders. These mosaics are almost identical with the decoration in the Catacombs of St. Calixtus, which shows that both had their origin in ancient art, and also afford an illustration of the ornamental style of the ancient ceiling decorations of the Roman dwelling-houses, of which Pliny speaks. The pagan character of these decorations led to the supposition, which was maintained for many centuries; that this building was erected as a temple to Bacchus, but it has long since been thought that it was either built by Constantine as a baptistery to the neighbouring church of St. Agnes, or later as a monumental church to his two daughters.

The Church of Santa Pudenziana, which has the reputation of being the oldest Christian church in Rome, was erected on the spot where St. Pudens and his daughters, Praxedis and Pudentiana, who entertained St. Peter, are said to have lived. It has a most interesting mosaic as the decoration of the apse of the tribune.

This church has often been restored, the first restoration being as early as the latter end of the fourth century, and the mosaic in question has suffered much by later restorations, although the design and composition of the work still warrants



Photo Alinari

MOSAIC : CHURCH OF ST. PUDENZIANA, ROME, 4TH CENTURY

it to have been executed, in its first state, in the days of Constantine. The background of the figures is occupied by a semicircular portico, above the roof of which, on the horizon, are grouped a glittering row of antique buildings, and in the purple and gold-edged clouds are representations, on a colossal scale, of the four emblems of the Evangelists, namely, the Lion, Bull, Eagle, and Angel. In the centre is the great figure of Christ enthroned, and directly above is a large and richly decorated gold cross. On either side of the central figure are figures of St. Peter, St. Paul, and the two female saints, St. Praxedis and St. Pudentiana, which project half-length above the row of eight half-length male figures, all of which are dressed in Roman costumes, and looking towards the spectator. The figures on either side slightly overlap each other, not occupying isolated positions, which was the common arrangement in the later Christian mosaics. The antique costumes, the buildings in the background and the general freedom of the whole composition, distinguish this important work from the more formal and stiff compositions of the later Christian, Roman, and Byzantine mosaics, which marks it as an isolated example of later Roman art that is distinguished by the best traditions of the antique—a fine and rare example of the art of the fourth century, that rising clear above the nebulous gloom of deterioration, which in this century had almost extinguished the power and beauty of ancient art, shines like the peak of a high mountain reflecting the last rays of the setting sun, when

the darkness of the night has already covered the valleys.

The finest mosaics which were executed as church decorations during the fifth and following centuries in Italy are found at Rome and Ravenna. The bishopric of Rome was the principal seat of the hierarchy, and the churches there were richly decorated by the Emperors and also by private individuals, while at Ravenna, which became the residence of the Emperors of the West, the successors of Theodosius, and afterwards of the exarchs appointed by the Emperors of the East, when the north of Italy was in possession of the Longobards, we find the most superb examples of mosaic, particularly those of the monumental chapel of the Empress Galla Placidia, A.D. 425-450, and St. Vitale, A.D. 547.

The Italian mosaics of the sixth century have been ascribed by some to the Byzantine School, chiefly from the fact that Ravenna was occupied by the Byzantians in A.D. 539. The style of these works, however, show the traditions and characteristics of the later Roman mosaics too clearly to warrant this conclusion, but on the other hand, it may be admitted, in the case of some of the mosaics executed towards the end of the sixth century, a decided Byzantine influence is apparent in the technique, and in the barbaric richness of the ornamental patterns which decorate the dresses of the figures, the various borders, and other surface ornamentation.

In the octagon-shaped baptistery of the Duomo at Ravenna we see examples of some of the earliest

mosaics of the fifth century, about A.D. 430. The spandrels of the lower row of arches are occupied by mosaics consisting of the figures of eight prophets alternating between finely designed gold arabesque ornaments, on a blue ground. The draperies of these figures are similar in drawing and motive to those of the later types of antique art. In the upper arches, stucco decorations in relief take the place of mosaics, which consist of figures of saints, peacocks, sea-horses, rams, stags, and griffins, chiefly in white on reddish-yellow grounds. In the centre of the octagonal cupola is the circular mosaic picture representing the Baptism of Christ. The head of Christ is similar to the Catacomb type, having long hair, and without a nimbus; a cross is placed between the Saviour and John the Baptist, while the river Jordan is represented as a river god, presenting a cloth, all the design being treated in the feeling and spirit of antique art. At the base of the cupola is a circle of rich mosaics consisting of thrones, altars, tables, and little monuments or tombs, each surrounded by a framework of architecture, Pompeian in character. The grounds of these mosaics are blue as in the case of the early work. In the section next to these are the twelve Apostles, colossal in size, standing upon the green earth, above which is the blue background, and a white drapery, decorated with gold. The garments of the Apostles are of gold stuff, and are designed in a free and flowing manner. The whole circle of the cupola is divided into compartments by gold acanthus ornament. The general decorative effect is in

complete accordance with the architecture, the colouring is rich, yet delicate, and the whole scheme of the decoration affords some idea—or if we are permitted to say, an echo—of what the world has lost in the destruction of the numerous and richly decorated buildings of the later Roman Empire.

The Mausoleum of the Empress Galla Placidia, widow of the Constantine II, was built about A.D. 440, and the mosaics which decorate this building were executed a few years later than those of the baptistery at Ravenna. This monumental chapel is generally known as the church of SS. Nazaro e Celso, and is built in the form of a Latin cross. The centre elevation is square in form, being arched over with the segment of a cupola, and the aisles and transept have wagon roofs. The cupola, arches, and vaults are entirely covered with mosaics, chiefly in gold on a dark blue ground. The subjects of the mosaics consist of figures, emblems, animals, birds, and conventional ornament, and the whole effect of the decoration is beautiful in the extreme. It affords the best known example of the fifth century, where the beauty of the antique decoration is mingled with the forms of the early Christian art. The dresses of the figures of the apostles are of flowing robes of white; golden stags are represented advancing between gold-green arabesques, on a blue ground, towards the baptismal fountain, doves are drinking out of a vase. The cupola is decorated with a large golden cross, stars, and the emblems of the Evangelists. In the chief lunette over the altar



Photo Alinari
MOSAICS : MAUSOLEUM OF GALLA PLACIDIA, RAVENNA, 5TH CENTURY

the figure of Christ appears with the flag of victory or a cross in one hand, and in the other a book of heretical writings which he is about to commit to the flames. Some critics identify this figure as that of St. Laurence. Some of the mosaics of the vaults are composed of circular flowers or rosettes, which point to Persian or Eastern influence, as indeed the general colour effect of this superb scheme of decoration owes more to the East than to the West for its incomparable colour harmony.

Another famous church at Ravenna is that of St. Vitale, built about A.D. 534. This church is octagonal in plan, and is remarkable for the beauty of the carved Byzantine capitals and precious marble shafts of the columns. The walls below the springing of the vaults are sheathed also in precious marbles and alabaster slabs of great beauty. This interesting church has in a great measure been disfigured by paintings of cherubs, angels, festoons, etc., of seventeenth century work, and is one of the many examples where a noble building has been spoiled by the added ornamentation of a later and decadent age; but here, fortunately, a few of the sixth century mosaics have still been preserved. These consist of the decorations of the semi-dome of the apse, of the principal tribune, and of the quadrangular arched space before it. The design and style of these mosaics are of a highly dignified character, and are in harmony with the architecture of the building. In the semi-dome of the apse is the youthful figure of Christ seated on the globe of the world, angels

are on either side and the figures of St. Vitalis, the patron of the church, and the Bishop Ecclesius as the founder, carrying a model of the building. These mosaics are on a gold ground with purple clouds. On the perpendicular wall of the apse, also on gold grounds, are the celebrated mosaics representing the Emperor Justinian and the Empress Theodora, accompanied by their great officers of state and ecclesiastical dignitaries, about to enter the church. The figures, life size, are all dressed in richly embroidered robes, the royal personages with diadems, nimbi around their heads, and dressed in purple robes with gold embroidery. These mosaics are highly valuable in affording examples of the ceremonial costume of the period, apart from their splendour as wall decorations.

The mosaic decorations of the Church of Sant' Apollinare in Classe, near Ravenna, and those of Sant' Apollinare Nuovo, a basilica within the city of Ravenna, both dating from the sixth century, are well known, and rank among the best examples of interior decorative art in Europe.

The basilica of St. Apollinare Nuovo was erected early in the sixth century by Theodoric, the Gothic king of Italy, as an Aryan church. Later in this century it was converted into a Roman Catholic church, and was then called St. Martin *in coelo aureo*—from its original “golden roof,” which, however, was destroyed, as the present panelled roof is a modernized restoration, dating from 1611. The upper walls of the central aisle, or nave, of this church are resplendent from the

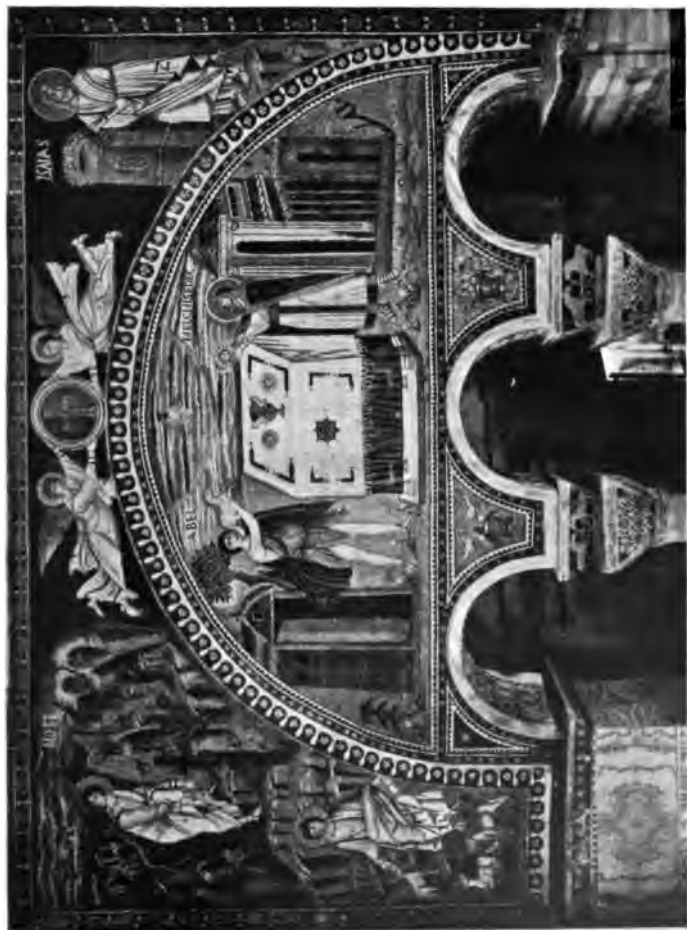


Photo Alinari

MOSAICS : ST. VITALE, RAVENNA, 6TH CENTURY

arches up to the roof with their original mosaics on gold grounds. On the walls just above the arches on either side of the nave are represented two long processions of martyrs, saints, confessors, male figures on the right, and female on the left. The dresses of the figures are in various light colours, and each figure carries a wreath or crown. The procession is advancing in a solemn way through an avenue of palm trees, a tree being placed between each figure. The starting-point of the male procession is indicated by a glittering representation of Theodoric's palace in the city of Ravenna, with its upper and lower arcades, domes, and corner towers. At the end of the procession there is a representation of Christ upon a throne surrounded by four noble figures of the archangels. On the left side the procession consists of the figures of female martyrs and saints advancing from the town of Classis, as is supposed from the representation of its harbours and fortifications, and the goal of this procession is the scene of the Adoration of the Three Kings. The Madonna is represented seated on a throne with the dressed figure of the Saviour, as a child, upon her lap, each with a hand raised in benediction, and around the throne are four beautiful angels. This group represents one of the earliest known instances where the Madonna is represented as an object of reverence. Between the windows, above these processional friezes are single figures of apostles in niches, clad in white garments, and still higher, above the windows, on a small scale are the subjects of the Miracles, and compositions

from the New Testament. The execution of these mosaics is very careful, the shading and drawing of draperies are dignified and refined, while the general colour scheme is rich and harmonious.

The Church of Sant' Apollinare in Classe, erected A.D. 535, is the largest and best preserved basilica in the district of Ravenna, although nearly all of the beautiful marble slabs, if not mosaics also that once lined its walls, were stripped off by that enemy to art, Sigismund Malatesta, Lord of Rimini, in 1449. The walls of the nave and aisles were left bare from that time until the eighteenth century, when the system began of placing portraits of the Archbishops of Ravenna in rows of circular medallions above the arches, and arranged as a frieze on either side of the nave walls. The portraits embrace all the archbishops from the earliest known down to the present day. The mosaics of the apse date probably from the sixth century, but the greater portion are of the seventh, and have been very much restored in modern times. In the semi-dome of the apse, with its background of gold, on which appear some light blue and light pink clouds, there is a large circular space in the centre having a blue ground studded with gold stars and jewels; within this circle is a large golden cross richly decorated, and at the crossing of the arms is a half-length figure of Christ. The half-length figures of Moses and Elijah appear as if coming out of the clouds, on either side of the central circle; and below is a meadow with trees, in the centre of which is the figure of Apollinaris, the



Phot. Alinari

MOSAIC : ST. VITALE, RAVENNA, EMPRESS THEODORA, 6TH CENTURY

Scholar of St. Peter, with hands uplifted, preaching and surrounded by a row of fifteen sheep. The sheep are emblematic of Christian congregations. Twelve sheep symbolizing the apostles, are represented advancing upwards on either side of the arch of the tribune, while two palm trees occupy the spandrels below. At the extreme top of this wall is a broad band with a blue ground, in the centre of which in a circle is the head of Christ, and on either side are the emblems of the Evangelists. The chief part of the composition of the semi-dome is emblematic of the Transfiguration. The lower walls of the apse have illustrations from the Old Testament, and four Ravenna bishops on a blue ground, standing under canopies with draperies. This church is remarkable for its illustrations of sacred symbolism, not only in its mosaic pictures, but contains an almost complete collection of the earliest symbols of Christian art, from simple monograms to pictorial representations of Christ as the Good Shepherd, among which may be mentioned, after the sacred monograms, the Lamb, the Fish, the Vine, the Ship, the Anchor, the Hart at the Brook, the Brazen Serpent, the Sheaf, the Ark of the Covenant, the Seven Branched Candlestick, the Phoenix, the Peacock, the Dove, and the Cross, as the most sacred emblem. All these and others occur in the spandrels of the arches in this church.

Some of the finest mosaics of the early Christian period in Rome are those which decorate the apse of the Church of SS. Cosmo e Damiano in the Forum. This church was built, A.D. 526 to 530,

and dedicated to the two Arabian doctors who suffered martyrdom under the Diocletian persecution. The mosaics are therefore of the sixth century, and though much restored in many parts, may still be considered as examples of the highest excellence as mosaic decoration. On a dark blue ground in the centre of the apse of the tribune is the colossal figure of Christ, of which the countenance, attitude and the noble design of the drapery, combine to produce an intense feeling of reposeful majesty. The right hand is raised in benediction, and the left holds a written scroll. On each side of the Saviour, below, are the apostles Peter and Paul, leading St. Cosmo and St. Damiano towards the central figure of Christ, followed by St. Theodore on the right, and the Pope Felix IV, a modern figure, on the left; at the extreme sides are palm trees, and the phoenix, the emblem of eternity. The draperies of the figures, though severe in design and late Roman in style, have nothing of the Byzantine stiffness, and the colour is remarkable for its rich and glowing harmonies of violet, red, and gold, on the background of deep blue. The heads of the figures are individual in type, which suggests attempts at portraiture. Below the figures there is a representation of the river Jordan with its water plants, sparkling with touches of gold, and under this composition is a secondary scheme of design on a gold ground, in which may be seen the Lamb on a hillock, from which runs the four rivers of Paradise, and twelve naturally drawn sheep are represented on either side.

ANCIENT AND MODERN PAINTING 91

Owing to the wars and disastrous events of the seventh and eighth centuries, art in Rome and Italy was almost at a standstill; at any rate very little remains to us of even the few works in mosaic painting that were executed in those centuries. Another thing which accounts for the stagnation of art in the eighth century was the destructive measures of the "Iconoclast," Leo the Isaurian. It is well known that this ruler of the Eastern Empire issued an edict in A.D. 726, against the supposed worship of images, which was confirmed by the council of three hundred and thirty-eight bishops at Constantinople in A.D. 754, and these coercive measures, which militated against the production of not only sculpture, but in a lesser measure against mosaics and monumental painting, were continued until the death of the last iconoclastic Emperor in A.D. 842. Although a great check was given to the advancement of art, and many important works were destroyed, still the practice of painting and the production of mosaics were continued by many of the monks who were in agreement with the Popes Gregory II and III, namely, that "the various scenes of the Passion of our Lord were feasible and praiseworthy subjects for the walls of churches." The Eastern Empire and Church did not submit to the iconoclastic edicts without resistance, while Italy revolted against them successfully. The Byzantine Emperor sent a Greek army to take Ravenna, because the inhabitants had killed the Exarch when he tried to enforce the law against images, but his army was vanquished by the Italians,

and to this circumstance we possibly owe the preservation of the mosaics now existing at Ravenna and Rome, for it is known that many important mosaics were, in those days of religious controversy, scraped off the walls of the churches, especially those that were representations of sacred personages.

The mosaics of Rome and of Italy in the ninth century were fairly numerous, and covered great spaces of the walls of churches, but in artistic quality were much inferior to those of the fourth, fifth, and sixth centuries, and in many cases were copies to a great extent of the earlier works, more especially in the composition and scheme of the decoration. All these mosaics have a decided Byzantine influence, as expressed in long attenuated figures and unmeaning disposition of drapery, together with a rudeness of execution which became more marked in the later works of this century.

One of the best examples of this period is the Church of St. Prassede on the Esquiline Hill at Rome, which is decorated with mosaics of the ninth century. The composition of those in the semi-dome is an exact copy of that in the Church of SS. Cosmo e Damiano, sixth century, mentioned above, only that the saints are differently named. The execution of the faces and drapery is rude and barbaric. Similar compositions of this period are to be seen in the mosaics of St. Cecilia in Trastevere, and in the tribune of St. Maria della Navicella, Rome. The two latter churches are remarkable for their rich decoration of ornamental



Photo Alinari

MOSAIC IN ST. APOLLINARE NUOVO, RAVENNA, 6TH CENTURY

designs in colours and gold, consisting of rich foliage between medallions, and wreaths of flowers growing out of vase-shaped vessels, which testify to the survival of the purely ornamental side of Byzantine art at a time when human figure-drawing and figure-composition were in a state of decadence.

Owing to the internal troubles, coupled with the inroads of the northern nations, mosaic and other forms of art practically ceased in Italy during the tenth century, and after this time, when art again blossomed in the country, it was due to the aid of Byzantium. Mosaic workers and artists were brought to Rome and Italy from Constantinople to execute works at the end of the tenth century, and they instructed many Italian pupils especially in mosaic work, so it is not to be wondered that this art in Italy was subsequently strongly influenced by the Eastern Greek ideals.

The republic of Venice was politically connected with, and was under the protection of Byzantium, and so enjoyed comparative tranquillity when the rest of Italy had more than its share of trouble, and it is owing to this circumstance that from the tenth up to the thirteenth century, Byzantine architecture, painting, and mosaic work became rooted, and flourished vigorously in the Venetian republic.

The basilica of St. Mark's, Venice, with its great wealth and witchery of Byzantine colour—a complete expression on Italian soil of the glow and glamour of the East—is a ninth century semi-Byzantine church, which was begun in the

year 830, but rebuilt after a fire in 976, the date of the founding of the present church. It is well known that the rich and precious marbles with which the floors, the pillars, and the walls half-way are incrustated, similar to those of the Church of Santa Sophia at Constantinople, were brought from all parts of the Western and Eastern Empires.

The crowning glory of St. Mark's, however, is its glow of rich colouring, chiefly due to its wealth of mosaics on gold grounds, which, uniting with that of the polished marbles and transparent alabaster, combine to produce a perfect chromatic effect, that has been described by Ruskin as "the most subtle, variable, inexpressible colour in the world." The cupolas, half-domes, and upper walls of the interior are everywhere covered with mosaics, dating from the eleventh, and perhaps the tenth century, to the sixteenth, many of them being restored, or re-made, covering a space of over 45,000 square feet, the church being a veritable museum of mosaics and other works of art. The domical style of building, with its barrel-vaulting and curved surfaces, is eminently adapted for showing to the greatest advantage the sparkling and sumptuous qualities of mosaic decoration, with all its richness of transparent colouring, its sheen of silver, and magnificent lustre of gold. The mosaics of St. Mark's give us some idea of what has been lost in the destruction of this form of decoration in Santa Sophia at Constantinople, where the only existing remains are some of the colossal seraphim, and a trace of

a figure of the Madonna, with angels. Yet we know that Santa Sophia furnished the model for all the subsequent colour decoration of the churches of Western Europe, and not only that, but the Byzantine Emperors may be said to have founded a centre at their capital from which all the arts flowed. They found the architect, Isidore, for St. Mark's, and the mosaic for the mosque at Damascus, as well as for the Kaabeh at Cordova, and we are not at all certain when Byzantine art was at an end before the final extinction of the Roman Empire by the Ottoman Turkish conqueror, Mahomet II, in 1453.

The splendour, too, of the courts of the Caliphs had afterwards its influence on the minor arts and crafts of both East and West, for the splendid Byzantine silk stuffs, tapestries, metal-work, and pottery, found their way into all European countries.

If we inquire into the origin of the great love for rich colouring in decoration which so suddenly leapt to light in the early Byzantine period we shall find it due to two great causes; one was due to the actual style of the architecture, for the Byzantine buildings were expressly designed so as to receive a colour finish by an incrustation or veneer of precious marbles and mosaics, and the other was the result of a Persian influence.

The early Christian basilicas, built for use as churches, were of a strictly utilitarian design, and were devoid of the heavy architectural features and ornaments which characterized the later temples, and other Roman buildings. The

same principle was carried out in the Christian basilicas of Byzantium, with a domed-roof construction. The domed roof of Persia, built of brick, was therefore the chief characteristic, if not the key-note, of Byzantine architecture. Not only were the Byzantine builders indebted to the Persians of the Sassanid dynasty (the third century) for their system of domed and vaulted building, but, as we have said, for their love of colour, and even for their system of veneering the walls of their buildings with coloured materials of a permanent description. The Persians used coloured tiles or enamelled bricks in the nature of slabs of veneered or incrustated decoration to decorate their rough brick walls, a system which they in their turn had learned the methods from their Assyrian and Chaldæan ancestors, or neighbours. Even when enamelled tiles were not used for this purpose and the walls of Persian buildings were merely plastered, these bare surfaces were hung with coloured carpets or embroideries in order to satisfy the Asiatic eye, that has always loved colour and decoration. It must also be borne in mind that the Persians hardly ever *constructed* their decoration, but as a rule applied it to their rough walls in a veneer of coloured tiles, or of veined stones, that were afterwards polished. Instead, therefore, of using enamelled tiles like the Persians to decorate the interiors of their buildings, the Byzantine builders, like the earlier Romans, used the thin slabs of beautifully coloured marbles, from material which they found conveniently at hand, and so adopted the system of

applied colour decoration that obtained among the Asiatic people from the earliest days of Mesopotamian civilization.

The great nave of the Church of Santa Sophia is an immense clear space obtained by the adoption and ingenious construction of the central dome. The lower ring of this dome is supported by the end semi-domes, which are below it, and abut against it, and the portions of the domes at the angles made by the right-angled walls are supported by four pendentives, which are really quarter-domes, or four sections of a great sphere. Thus the central dome, which is in section something less than a semicircle, is supported on the east and west by the lower semi-domes, on the north and south by the great arches of the walls, and in the corners by the four pendentives or quarter-domes. It is on these pendentives that the colossal six-winged seraphim, the remains of the Christian mosaics, are still found. The dome system as expressed in Byzantine architecture usually postulates a rectangular or octangular hall, or nave, below the dome; in this it resembles the system adopted in the Sassanid Persian buildings of the third century, only that the Byzantine dome is in section a semicircle or part of a circle, while the Persian or Asiatic dome is in section a part of an upright ellipse. In the domed buildings of the Romans, as seen in the Pantheon and in some of the Thermæ, the hall or chamber below is usually circular in plan, following the plan of the dome.

The beauty of the general effect of the Santa

Sophia interior is enhanced by the refined sculptured decoration of the capitals, spandrels, arches, bands, friezes, and mosaic. Any mosaic of a Christian character has either been destroyed by the Turks, or has been plastered or whitewashed over, but many beautiful bits of a purely ornamental kind, inasmuch as they did not offend the Moslem faith, have been allowed to remain.

The eleventh century in Italy and the near East was not remarkable for great works in monumental coloured decoration; the art of mosaic, especially, was in a state of decadence. More attention was given to the creation of smaller objects of art, such as ivory-carvings, metal-work, enamels, miniature-painting, and small portable mosaics which reflected in their restrained dimensions a dwarfed and also a mummified kind of art, denoting absence, rather than the presence of the vital principle. It was the age of the artisan and hardly that of the artist. Where the human figure was represented, the body was thin and lifeless, the expression very morose and severe, the draperies rendered in straight and parallel folds, as if the breath of life had gone from the gaunt bodies and their draperies had become their shrouds.

THE ROMANESQUE PERIOD.

After what may be called the dark winter of the eleventh century, came the spring of the twelfth, which, although it has not been appreciated



Photo Alinari

**MINIATURE MOSAIC : BYZANTINE, 11TH CENTURY, IN THE MUSEO DI
ST. MARIA DEL FIORE, FLORENCE**

enough, was really the veritable dawn of the coming Renaissance. Quite a host of mosaicists, whose names have not come down to posterity, have produced many important works in the twelfth century, which in point of figure drawing, colour, and composition have hardly been equalled and certainly not excelled by the first known Tuscan masters. For a hundred years before the days of Niccola and Giovanni of Pisa, and for more than that time before Cimabue and Giotto, these old rude and brilliant mosaicists of the twelfth century, together with the miniature designers of this and earlier centuries, were supplying motives and compositions which were boldly adopted by the primitive frescanti of Italy, when painting almost entirely took the place of mosaic decoration. The mosaic artists of the twelfth century were therefore the true harbingers of the Renaissance in Italy.

The basilica of St. Maria in Trastevere at Rome has still some mosaic decorations of the twelfth century, as well as others of the fourteenth. The first-named mosaics were executed to the orders of the Popes Innocent II and Eugenius III (1139-53), and are considered to be among the first important Romanesque works in Italy; this applies to those within and around the tribune of the choir, which are of the highest interest, on account of the work being one of very first produced that is essentially western in character, being in a great measure, but not wholly, removed from Byzantine influence. In the vault of the apse Christ and the Virgin Mary are seated side

by side, here represented for the first time in this position, on a magnificent throne, and on either side are six saints with the Pope Calixtus I, or Innocent II, while on the band below are the twelve sheep, and the towns of Jerusalem and Bethlehem represented on a blue ground. Above the tribune, on the triumphal arch which separates the apsidal end of the church from the nave, are the signs of the Evangelists, the seven candlesticks and other symbols, and next to these, and below them, are the Prophets Jeremiah and Isaiah unfolding their scrolls, and below are two genii lifting drapery that is filled with flowers and fruit, while two doves are flying round a vase. The latter decorative work is reminiscent of the Pagan Roman style. It is worthy of note that in the sacristy of this church there is preserved a fragment of an ancient Roman mosaic of ducks, grasses, and fishermen, which, especially in the representation of the birds and grasses, is a most lovely arrangement of colour; the ground being of a creamy white, with reds of various tones, yellow ochre and umber tints, cobalt blues, grey-greens of yellowish and bluish tones, together with small portions of a very dark grey, complete the beautiful and rich harmony. Although several parts of the mosaics, that are easily recognized, have been badly restored, the work presents on the whole a simple grandeur; the poses of the figures have a dignity and freedom of action, their forms are round, not of the usual angular type, and the drapery, especially that on the figure of Christ, is remarkably good in the arrangements of the



Photo Alinari

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folds. On the façade of this church there are some mosaics, the design of which dates from the twelfth century, the subject being the Virgin and Child in the centre of the composition, with five virgins or female saints standing on either side. This work has been very much restored, and is not so important as the mosaics of the interior.

The apse of the tribune of the upper church in the interesting and beautiful basilica of San Clemente in Rome is decorated with a purely ornamental mosaic of the twelfth century, chiefly composed of a foliated scroll-like pattern which covers nearly all the surface of the semi-dome. The design in character is thoroughly Romanesque, without any trace of Byzantine feeling; on the contrary, the vine-like foliated scrolls with the little figures, birds, and conventional floral forms interspersed, are strongly reminiscent of the Western Roman decoration of the grottos and catacombs. The ground is gold, the scroll-foliage green, in the centre is a dark blue crucifix on the arms of which are twelve white doves. On either side of the crucifix are the standing figures of the Virgin and St. John, and below are the four streams of Paradise, with stags drinking, peacocks, other birds, and little figures. Through the branching scrolls are many small human figures, and birds—four of the figures represent the fathers of the Church. Below the semi-dome, on a blue ground, are the thirteen lambs. The whole is surrounded by an extremely rich border of foliage, fruit, flowers, and figures of boys. On

the upper part of the wall of the choir tribune is the figure of Christ, the symbols of the Evangelists, and those of saints, apostles, and prophets, but these mosaics have been altered and restored in the early part of the fifteenth century. The purely ornamental mosaics of the semi-dome are particularly interesting, as they foreshadow the use of this kind of arabesque decoration which Raffaello and his pupils developed so much in the sixteenth century.

The Cathedral at Torcello, a deserted island in the Venetian lagoon, contains some important mosaics of the twelfth century. Those on the west wall are arranged in bands or tiers and occupy the whole of the wall space, the subjects being the Last Judgment, Christ in Hades, and the Crucifixion. In the tribune is a fine example of a Byzantine mosaic on a gold ground, representing a great blue-robed Madonna, with the Infant Christ and the Apostles, remarkable for its fine and simple treatment of colour, and for the monumental and dignified rendering of the figures. In the centre of the lower part of the apse is the bishop's throne with the circular row of priests' seats on either side, and at the back are the original alabaster slabs, the natural veining of which makes a chevron-like pattern as they are placed in juxtaposition. This is the only instance of this kind of structure that still remains in its original state. On the pulpit steps and on the choir screen are some beautiful carvings of birds and foliage, designed and executed in the Byzantine style, while the conventional vine and

acanthus foliage on the capitals are carved with more than usual spirit and delicacy.

Many of the finest mosaics in St. Mark's, Venice, were executed during the twelfth century, namely, those illustrating the history of the patron of the church in the Zeno Chapel; the Christ, Madonna, Solomon, David, and the Prophets in the cupola of the choir; the Eternal Father and Saints in the apse; the Holy Spirit in the first cupola, the Evangelists, and the rivers of Paradise in the angles of the great cupola, and the figure of the Saint Clement in the chapel of that name. Most of these mosaics have been very much restored or re-made, but in the parts that are original there is sufficient proof to warrant them to have been of Byzantine workmanship. The inlaid marble floor of St. Mark's dates from the twelfth century. Some important mosaic decoration of this century is found in the churches of Sicily.

In the thirteenth century numerous Latin churches were decorated with mosaics, and even in the latter half of the previous century the workshops of the mosaicists in Rome were in full activity. Vasari, in his *Lives of the Painters*, has given the names of many of these old mosaicists.

The basilica of St. Peter's at Rome, and that of San Paolo fuori le Mura, were decorated with mosaics in the early part of the thirteenth century, but in the case of those in St. Peter's of the thirteenth century and earlier periods, all have disappeared, after suffering incessant repairs, until the time of Nicholas V, who in 1450 took over the

entire reconstruction of the fabric. And as regards the mosaics of St. Paul's, the greater part perished in the fire of the building in 1823. The general design, however, and some portion of thirteenth century mosaics still exist in the tribune; they represent Christ in the centre, and a small figure at his feet, supposed to represent the Pope Honorius III, who ordered this work (1216-1227). St. Peter and St. Andrew are on the right, and St. Paul and St. Luke on the left, and under this composition are the figures of the twelve apostles, represented perhaps for the first time, instead of the traditional twelve sheep.

Florence, in the year 1225, began to decorate the baptistery with mosaics. The vault of the tribune, the cupola, and the gallery of this octagonal church, were covered with a world of saints, archangels, patriarchs, and people, and a colossal figure of Christ, all actors in the scene of the Last Judgment, which is the subject of the mosaics. This decoration can now hardly be seen even on a bright day, on account of its decayed state and the dimness of the interior. The general design is not well set out or spaced agreeably, and the drawing of the figures is of an exaggerated stiffness and barbarous enough, with perhaps the exception of those of the gallery, which are less so than the other parts of the work; this would suggest that the best available artist was entrusted with the gallery decoration; for according to Vasari, many mosaicists collaborated in this work. Vasari mentions that the decoration was entrusted to Andrea Tafi (1213-1294), who,

embarrassed with the technique, went to Venice to engage the services of some of the Greek mosaicists who were then decorating St. Mark's, and succeeding in securing the services of a Greek named Apollonius, he brought him to Florence. Apollonius taught Andrea the method of manufacturing the small cubes, and of making the cement. The recipe for the enamels was good, but that of the cement bad, for towards the middle of the century following, less than fifty years afterwards, the mosaics detached themselves from the walls and their restoration was confided to Agnolo Gaddi, the grandson of Gaddo Gaddi; the latter, according to Vasari, was one of the mosaicists who worked with Andrea Tafi in the baptistery. Another *collaborateur* in this work (1225) was a Franciscan monk, named Jacopo da Turrita, who is not to be confounded with the later, and greater mosaicist, Jacopo Torriti, the author of the celebrated mosaics (1287-1292) of the tribunes of St. John Lateran and St. Maria Maggiore in Rome, although Vasari states that the artist who executed both the Florentine and Roman mosaics was the same person. Not only the distance in point of time between the signed dates of the Florentine and Roman mosaics, but the superiority of the design and style of the latter in comparison to the former, and also the great noticeable difference in the technique, clearly prove that Vasari has come to a wrong conclusion in his statements when he ascribes the works of two mosaicists to one artist, and this in spite of his acknowledgment of the great inferiority of the

Florentine baptistery mosaics to those of SS. John Lateran and Maria Maggiore at Rome.

In the design and workmanship of the mosaics, by Torriti, of the apse in St. John Lateran, there is seen a general animated action of the figures, which shows the designer was strongly influenced by the older mosaics of the fifth and sixth centuries. In the uppermost portion of the apse the head and shoulders of Christ, on a large scale, is placed in the centre among clouds, and above are nine angels with outspread wings; below this are six saints and apostles, with whom are some smaller figures representing St. Francis, St. Anthony of Padua, and the Pope Nicholas IV, all of which are advancing with their hands raised in adoration towards a large cross in the centre, at the foot of which are sheep and stags, and the river Jordan. On the wall of the tribune, below and between the four arched window openings, are the mosaics representing Christ and the Apostles, on a smaller scale, and on either side of these figures are palm trees. The ground of these mosaics is gold. The reveals of the window openings are decorated with conventional foliage, flowers, and ornament in greens, reds, white, and blues, on alternating grounds of blue and gold, the general effect being extremely rich and appropriate as a foil to the surrounding figure decoration. Torriti's masterpiece, however, is the decoration in mosaic of the tribune of St. Maria Maggiore at Rome, which he finished about the year 1300, or a few years later. No contemporary work exists which surpasses or equals the beauty



Photo Erogi

MOSAIC IN THE CAPPELLA PALATINA OF THE PALAZZO REALE, PALERMO, 12TH CENTURY

and grace of this composition in decorative design and colour. The centre of the apse is occupied by a large gold-starred circle with a blue ground, on which Christ is represented seated on a magnificent throne, with the Virgin on his right. The Saviour is placing a crown on his mother's head, while she lifts up her hands expressive of adoration. On either side and at the lower parts of the large circular panel there are the choirs of archangels on their knees, and beside them are the kneeling Pope Nicholas IV and a cardinal; behind these on either side are the six figures of saints and apostles. On the ground above the latter an extremely rich design of double scroll-work is seen interspersed with various kinds of birds, which is so like the decoration of the mausoleum of Galla Placidia, that it is conjectured this portion of the work probably dates from the fourth century, or if not, it is an adaptation by Torriti of the purely decorative scroll-work of the fourth century on the wall of the tribune, and on a band which is pierced by the tops of the windows, are a series of seven small mosaic subjects representing scenes in the life of the Virgin. These were executed by Gaddo Gaddi shortly after the year 1307.

On the façade of this basilica there are some important mosaics of the fourteenth century by an artist who has signed the work "Philipp Rusuti," but who is otherwise unknown except as being the friend of Cimabue. The style and general character of these mosaics reminds one of Cimabue's semi-Byzantine manner; the design

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may have been possibly made by the latter painter, who may have employed Rusuti to execute the mosaic work. On the same façade there are a series of mosaics by Gaddo Gaddi, in four compartments, illustrating the history of the foundation of the church. Each compartment has only a few figures, but a great deal of architectural forms, consisting of slender pillars and arcading, supporting canopies and entablatures. These mosaics, though interesting, are too full of detail and accessories, and lack the simplicity and grandeur of Rusuti's and Torriti's excellent work.

The large conventual church of San Miniato al Monte, south of Florence, is a late Romanesque building, founded by Bishop Hildebrand in 1013. Its façade is a fine example of exterior structural colour decoration in marble, consisting of small slabs and bands of grey-white and dark green marble. The interior vertical portions of the walls, arches, and spandrels are also beautifully decorated with inlaid and carved marbles, chiefly in patterns of squares, lozenges, circles, lines, and other devices. It has a very fine marble pulpit in the upper choir, and an elegantly designed canopied altar in the centre, on the ground-floor. The floor is of "opus sectile," a kind of inlaid marble in dark green and grey-white, with various designs, including the signs of the zodiac, similar, but even finer than the floor of the baptistery at Florence. The interesting mosaics of the choir tribune were executed about 1297. The figure of Christ is here represented enthroned on a green

meadow, between the boldly-rendered signs of the four Evangelists, and on either side of the Saviour are the Virgin and St. Miniatus. A general stiff Byzantine feeling clings to the figures and draperies, but the trees, plants, and especially the birds in the meadows, are more than usual naturally rendered. The draperies are delicately hatched with gold, and the general execution is careful. Altogether these mosaics form a stately diapason of dominant colour harmony, into which the gathering force of the general organic colouring of the rest of the building is finally united, to complete a rich and effective scheme.

Many painters of the thirteenth and fourteenth centuries in Italy designed, even when they did not execute the mosaics as well, but gradually, during the latter century, the old mosaicist gave place to the painter, and the latter, when he did design the more durable decoration, seemed to forget the true function and limits of the material, and, especially after the time of Giotto, the grand style of decorative mosaic completely disappeared, and instead we see imitations of frescoes and wall paintings elaborately worked out in mosaic. On the other hand, as we mentioned before, mosaic design provided many of the motives, and was responsible for the monumental compositions and dignified style of the early Italian fresco painters. It may be said, with the exception of some overlapping, however, that the rise of Italian painting in the early Renaissance period synchronizes with the decay of mosaic as a magnificent form of decorative art.

The Roman family of Cosmati were distinguished as excellent mosaicists of the thirteenth century. This family consisted of the father, Laurentius, and his two sons, Luca and Jacobus. Laurentius and his son Jacobus decorated the porch of the Cathedral of Cività Castellana, a place not far to the north of Rome, where the wall spaces, friezes and borders are all worked in mosaic, with representations of the Saviour, the Lamb, and symbols of the Evangelists. These decorations are signed with the name of the Cosmati, and are characterized by a pleasant freedom of execution and are good in colour. The father and his son Luca, executed some good mosaics in the Church of St. Scolastica at Subiaco, as proved by an inscription, and also in the dome of the Cathedral of Anagni. There is a votive picture in mosaic which decorates the tomb of the Cardinal Gonsalvo Rodrigo in the Church of St. Maria Maggiore, and another to the memory of G. Durante, Bishop of Mima, in the Church of St. Maria Sopra Minerva, both of which bear the inscriptions, "Jacobus, son of the master Cosmas, Roman citizen." The mosaics of the arch of the tribune and those of the lower part of the same tribune in Santa Maria in Trastevere are ascribed to School of the Cosmati, but are more than likely to be the work of Cavallini, as stated by Vasari.

There is nothing positively known of the exact date of the birth of Pietro Cavallini, but his authentic works were executed in the first half of the fourteenth century. Vasari says that he was the disciple of Giotto, and also, that "he



MOSAIC IN ST. MARIA IN TRASTEVERE, ROME, BY P. CAVALLINI, LATE
 13TH CENTURY: BIRTH OF CHRIST

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mixed the Greek manner with that of Giotto." It is more likely, however, that Giotto met his contemporary, Cavallini, in Rome in 1298, and found him flourishing then as a Roman artist of great power. He assisted Giotto in some mosaics which once adorned St. Peter's at Rome, but of which there are no traces left, except the celebrated mosaic picture of the Navicella, which is in the vestibule. This work, designed by Giotto, for the ancient basilica of St. Peter's, has frequently changed its position, and has been restored so often that nothing of the original is left except the outlines of the design.

Cavallini was an artist of great power; he practised as a mosaicist, fresco painter, and sculptor, and recent research tends to show he was a more important artist than Vasari, or Crowe and Cavalcaselle state of him in their notices of his life and work. These authors agree in crediting Cavallini with the execution of many mosaics that are in the style of Giotto's paintings, which assertions may be based on the knowledge of the known friendship of these masters, and the assistance of Cavallini to Giotto in various mosaic decorations. Many, however, of Cavallini's so-called Giottesque mosaics, if not absolutely of his own composition, or if they are reminiscent of Giotto, as for example, those of Santa Maria in Trastevere, which are given to him by most authorities, are of the same traditional design and composition found in the Greek Menology, an old Byzantine miniature in the Vatican (No. 1613), a work of the tenth or eleventh century. From

this work and other early miniatures the majority of the Italian artists were indebted for many of their fresco and mosaic compositions, as we shall see later in the chapter on miniature painting. When Cavallini did adopt Byzantine compositions, or even when he helped Giotto, his work showed the traces of a virile style of the older Roman drawing which gave a vigour and robustness to his efforts that was deficient in Byzantine art, and even in Tuscan art, at the beginning of the fourteenth century. Some excellent fresco paintings by Pietro Cavallini were discovered in 1900 in the organ loft of the convent chapel in the Church of St. Cecilia in Trastevere, with subject of the Last Judgment. These fine frescoes clearly illustrate the Roman classical manner of Cavallini, and have nothing in common with the Tuscan art of the period; they also afford further proof that Cavallini was the greatest artist in Italy prior to the advent of Giotto.

From the fifteenth century and onwards mosaic became more and more transformed into close imitations of painting. Many mosaics of the seventeenth and eighteenth centuries which decorated the Churches of St. Peter's at Rome and St. Mark's at Venice, are merely large easel pictures transformed into the more lasting material. Titian, Tintoret, and Pordenone designed many pictorial mosaics for St. Mark's and St. Peter's, while both frescoes and oil-paintings of numerous Italian artists have been faithfully copied in mosaic on the walls of the latter church, since the days of Urban VII (1623-44), no doubt



Photo Alinari
 MOSAIC IN ST. MARIA IN TRASTEVERE, ROME, BY P. CAVALLINI, LATE 13TH CENTURY :
 THE ADORATION

with the laudable desire to render the compositions of the great masters imperishable by incrustation in mosaic, and at the same time to provide a permanent colour finish to the great basilica; but in the majority of the mosaic copies of paintings in St. Peter's the interpretations of the originals are imperfect, for it is not an easy matter to find a mosaicist with enough abstraction of his personal temperament, that would enable him to adopt completely that of the artist who produced the original work, in order to make a facsimile reproduction of, or even a spirited interpretation of, the original. Wonderful as the modern mosaics of St. Peter's are in their tedious technique and polished smoothness they are entirely out of place as the decoration of a great building, inasmuch as they have not been designed for the places they occupy, and are altogether at variance with the grand decorative rôle of mosaic. The colour decoration of churches, palaces, and other public buildings in Italy was principally carried out in fresco and tempera mediums, after Giotto and his contemporaries had, in their work, cast off the fetters of Byzantine conventionalism. The brilliant period of Italian art from 1300 to 1550 was a time of unparalleled activity in painting, sculpture, and in the minor decorative arts, and the very best art of this period was applied to the decoration of all descriptions of public buildings. Notwithstanding the great zeal and activity in decoration manifested in this period, there are very few examples existing of church or other interiors where the general colour scheme has

been arranged to harmonize, or to make it one with the architecture of the building. Where we find one instance of the latter, we also find dozens of elaborately designed colour decorations, which in their various divisions as different and separate frescoes in the one interior do not fulfil the legitimate purpose of decorative harmony, which should assist, rather than confuse, that sense of repose which ought to be aimed for in all good decorative expression.

That it is not necessary to aim for austerity or simplicity in colour in order to obtain the needed repose, we may mention two notable examples which illustrate rich splendour of colour, and are yet extremely reposeful in their general effects, namely, the Borgia apartments in the Vatican, Rome, decorated by Pinturicchio, and the Riccardi palace at Florence, the work of Benozzo Gozzoli. Both of these great works are glowing with rich colours and gold, and yet both constitute fine examples of architectural repose. The decoration of the Palazzo Pubblico at Siena, with its large frescoes illustrating "Good" and "Bad Government," by the Lorenzetti, and that of the Church of St. Francesco at Assisi, by Giotto, are also examples where the design and colouring are in good harmony with the architecture and materials of the building. Other examples might be mentioned where the sense of repose is happily expressed in the colour schemes, but in the great majority of instances the architectural unity and proportion of Italian buildings are not always assisted by the colour decoration. This, of course,

is unavoidable, in consequence of the employment of artists belonging to many and different schools, and of the different periods in which the various works were executed, many of which, though found in juxtaposition, bear little relation to each other, either in colour or in subject, and often less to the main forms and structural lines of the architecture. In many cases the different artists seemed to take a delight in making their work as antagonistic as possible in form, feeling, and colour, to the work already executed in the same building. This we know is perfectly natural, and what we expect when artists are free to act independently of each other in the decoration of the same interior, and it cannot be denied that in these circumstances, we are often treated to an exhibition of a most interesting and varied collection of works of art on the walls of the same edifice, which, though important individually, can hardly be called legitimate decoration of the architectural features. Many of the Italian churches, apart from their sacred uses, are veritable museums of decorative and pictorial art, and often in the same church there are found examples of painting and sculpture sufficient enough to illustrate the historical development of art from the early Christian days to the decadent periods of the late Renaissance.

CHAPTER VII
BYZANTINE AND ROMANESQUE
MINIATURE PAINTING

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CHAPTER VII

BYZANTINE AND ROMANESQUE MINIATURE PAINTING

IN the previous chapter we have pointed out that the veritable dawn of the Renaissance, as far as painting is concerned, was the beginning of the twelfth century, the vernal spring that followed the dark winter of the eleventh. The latter century was chiefly noted for the production of plentiful work in small objects of art, such as miniatures, ivory carvings, enamels, metal-work, and small portable mosaics. But wherever the human figure was used in the illustration of the subjects which formed the decoration of these minor works its general type was that of an ill-drawn or modelled, gaunt, and lifeless image of humanity, clothed in an extremely conventional way, with straight, parallel, and inorganic folds of drapery which had little or nothing in common with the surface forms of the body it was intended to clothe. The twelfth and thirteenth centuries witnessed, as we have seen, the creation of many large and important works in mosaic as the decoration of churches, before fresco painting in a later period was universally adopted as almost the chief occupation of the Italian painters.

Miniature painting has been mentioned as one of the minor arts largely practised in the eleventh

century, and of course was so much earlier, and continued as the decoration or illustration of manuscripts until the date of the invention of printing, when coloured woodcuts took its place as book illustration.

Many of the compositions of large and important mosaics and frescoes during the whole period of the rise and development of painting in Italy and other countries were derived from, if not actually copies of, earlier miniatures. During the period of the Middle Ages, until the time of Giotto, and even after this, it was a common enough practice to enlarge the designs of earlier miniature paintings and use them as wall decorations, just as on the other hand the illustrators of manuscripts in Italy, Germany, France, and England adopted the designs of the wall paintings as subjects for the decoration of their own books. As far as colour, composition, and technique go, there is no reason why a miniature, if it be distinguished by excellence in these qualities, should not rank as an important example of art. Miniature painting has in the past been of undoubted service in helping the advancement of the larger forms of monumental painting, and for centuries in the so-called darkest ages it was the only kind of painting practised. We must therefore regard it as an important link in the development of modern art.

Miniatures were the illustrations of the text of illuminated manuscripts, or rather the more elaborate part of the decoration of the writing, sometimes occupying only a small portion of the



Harley MS., B.M.

GOSPELS : CODEX AUREUS, FRANCO-GERMAN, ABOUT A.D. 800

written page, but sometimes more than the half, if not the whole page, the writing in the latter case generally occupying the opposite page of the vellum. In some instances, especially in the case of the more sumptuously illuminated manuscripts, the miniatures and decorative ornament occupy by far the greater amount of space in the volume.

Perhaps the oldest example of an illuminated manuscript is the Egyptian *Book of the Dead*, made for Ani, about 1500 B.C., which consists of a volume written and decorated on papyri leaves, and is now in the British Museum.

There are three very interesting examples of classical manuscripts which have miniatures painted on vellum that have survived to the present day. One of these is a copy of the *Iliad* of Homer, or rather fragments of the original manuscript, now in the Ambrosian Library at Milan. This is a Greco-Roman work of the third century. The other two are the smaller Virgil and the *Codex Romanus*, both in the Vatican Library. The smaller one, dating from about the fourth century, is known as the Vatican Virgil, and is much superior as an artistic production to the larger one, which is feeble in drawing and coarse in execution, and may have been produced any time between the fourth and sixth centuries.

The smaller Virgil has fifty miniatures, six of them being of the full size of the page: nine of the subjects are illustrations of the *Georgics*, and forty-one of the *Æneid*. The paintings vary in merit, showing the whole to be the work of two or three

illustrators. The *Georgics* pictures are the best of the illustrations; they display great freedom in the pose and drawing of the figures, and exhibit a masterly directness of touch in the execution. The landscapes, buildings, and animals show an advanced and intimate knowledge of painting from nature, which goes to prove that the art of the period had not yet reached the lowest depths of the decline towards which it was hastening. The colouring, like the execution, in these miniatures is unequal; in some cases, however, it is rich and harmonious, though as a rule the flesh-tints are of a brick red. Black, white, green, blue, red, yellow, and gold are used, and each miniature is enclosed in a border of red, black, and white lines, and also gilt lozenges. Gold is used to heighten the soft draperies and accessories. Some of the poses of the single figures and some whole groups, are paraphrases of Greek statuary.

The Ambrosian *Iliad* is an older work than the smaller Vatican Virgil, and is quite different to it in style and treatment, being less pictorial in design and having more of a decorative or monumental character, especially in the composition of its best pictures. This would suggest in the case of some of its fifty-eight miniatures that comprise the fragment left of the book (which has been conjectured to have originally consisted of 240 leaves), that they have likely been copies of Greek wall paintings; as the style of the designs is of a spacious and dignified character, more suited to wall painting than to smaller work. For example, the page which has the



Cotton MS., B.M.

CHARTER OF KING EDGAR TO NEW MINSTER : WINCHESTER, A.D. 966

subject of "The Trojan Women Sacrificing to Minerva," might have well been a copy of a Greek or Greco-Roman wall decoration. Here is shown a tall and dignified woman at an altar, accompanied by five maidens, who form the left group of figures, and to balance this group there are figures of two soldiers disputing on the right, all being arranged in a symmetrical manner in front of a background of classical buildings. The colouring has a good deal of red, with white, purple, and a bright yellow. There is no gold used in the *Iliad* pictures.

Although there are some isolated examples of very fine work in these manuscript illustrations, the greater part shows the feebleness of the state of art in the third and fourth centuries in Italy, but a much greater degradation is shown in the third remaining classical manuscript, the larger Virgil in the Vatican Library, the *Codex Romanus*. This manuscript consists of 309 vellum leaves, and the designs, colouring, and execution are coarse and child-like, some of them being crude copies of wall paintings. The origin of this *Codex* is not exactly known, but it has inscriptions of the thirteenth and fourteenth centuries, showing that it belonged to the Abbey of St. Denis, near Paris. The portrait of Virgil occurs three times in this book, copied from the old mosaic portrait of the poet, recently found at Susa.

The *Joshua Roll*, a Roman work, originally consisting of a large parchment thirty feet long by one foot in width, but now divided, and in a volume of fifteen leaves, is also in the Library of

the Vatican. It represents scenes from the life of Joshua painted in the manner of the early Christian art at Rome. The figures and details are somewhat similar to the reliefs on the Trajan Column, and the designs are in brown outlines. The colouring is executed in parts in transparent rosy tints of water-colour in a sketchy manner, recalling the Pompeian wall decorations. Spirited groups of soldiers with classical uniforms, graceful goddesses personifying cities, rivers, and mountains, are all rendered in a lively and spontaneous manner. The date of the *Joshua Roll* is a subject of great controversy, the ninth and tenth centuries being generally suggested, but if any one of these dates is correct the design and drawing provide a strong reason to infer that it is a copy of a much older work, perhaps of the third or fourth centuries. As a proof of this, we may point out that some of the subjects are copies of, or may have provided the designs for, some mosaics of the fifth century, in the Church of St. Maria Maggiore. It is quite likely, however, that this interesting collection of designs comprises one of the many sets of miniature pictures so often used as patterns for mosaics and wall paintings. Wherever the figure of Joshua appears in this work, he is distinguished from the other figures by his greater height and also by his nimbus.

The Greek *Menology*, an illustrated calendar made for Basil II, (A.D. 976-1025), is preserved in the Vatican Library. It consists of a volume of 215 leaves, and contains many designs executed by the best Byzantine artists of the period at



Add. MS., B.M.

SIMEON METAPHRASTES : BYZANTINE, 11TH TO 12TH CENTURY

Constantinople, and is the most important surviving example of miniature painting of the tenth century. Some of the subjects of the illustrations in this *Menology* are identical with those of the mosaics of the Cathedral of Cefalù, in Sicily, and also with some of those in the Cathedral of Monreale. The foundation-stone of the church at Cefalù was laid in 1131, and the mosaics, according to the inscription on them, were begun in 1148 by order of King Roger. These mosaics are the oldest of the Norman period in Sicily. The earlier date of the *Menology* compared with the later one of the Cefalù mosaics, clearly proves that these miniatures, or copies of them, furnished the designs for the mosaics, and this is all the more likely to be the case when we bear in mind that the illustrators of the *Menology* and the mosaicists of Cefalù and Monreale were Byzantine artists of Constantinople. It is therefore reasonable to infer that the Greek mosaic workers carried with them a stock of ready-made and portable designs in the nature of miniature copies, and enlarged them as mosaic decorations in the churches of Sicily and of Southern Italy. The *Menology*, which only, however, extends to half of the year, September to February, is the most important surviving example of its class. It is the work of eight Greek artists, whose names appear on some of the pages, and is painted in lively and clear body colours, on a gold ground. The figures are painted on a preparation of verde, or grey-green ground, a practice followed out by Greek and Italian artists not only in some minia-

tures, but in panel pictures and often in fresco painting. Some of the compositions in the *Menology* are very fine, though the whole work is unequal, reflecting the degrees of ability of the various illustrators of the work. The subjects treated are scenes from the Life of Christ and the Saints, Martyrdoms of Saints, and various Biblical subjects. One scene represents the Saviour in glory, surrounded by the apostles, where the figure of the Saviour is noble in design and attitude, the apostles having the typical slender forms, though the heads are full of character and individuality. An Adoration of the Shepherds is of the typical composition which was often used by the later fresco painters of the Upper Church at Assisi, and in the mosaics by Cavallini, in the Church of St. Maria in Trastevere, near Rome, where also the Subject of the Nativity, one of the most beautiful of the *Menology*, is reproduced in the same series of mosaics with only a very slight variation. The figure groups in these miniatures are generally well distributed, and in many cases almost symmetrically balanced. Most of the compositions have landscape settings, with the conventionally drawn rocks, hills, and mountains, so peculiar to Byzantine painting, and also in a great measure to the work of Giotto, Duccio, and the early Sienese masters, as well as to the work of Gozzoli, Mantegna, Fra Angelico, and other pre-Raphaelite Italian painters, where we find rocky slopes and barren truncated mountain-tops assuming a sort of basaltic formation expressed by a series of clustered pillar, or



Roya! MS., B.M.

PSALTER OF WESTMINSTER ABBEY, LATE 12TH CENTURY

organ-pipe-like forms, spreading a little out at the base, and cut off flatly at intervals of unequal height. Although this highly stratified, and vertical-like rock and mountain formation represented a very conventional view of the natural reality, yet there is much to be said for its use in monumental or decorative painting, and in the hands of a master such as Mantegna, it is used as a means of imparting dignity and grandeur to the general composition. This method of rock drawing, though generally characteristic of Byzantine art and of the Italian Primitives, has found favour with some modern artists, among whom we may mention the late Burne-Jones, who used such forms effectively in many of his paintings and decorative designs.

Another fine example of Byzantine art is found in the illustrations of the famous Paris *Psalter*, a work of the tenth century, executed at Constantinople and now in the Bibliothèque Nationale at Paris. This work, although all of its fourteen full-paged miniatures are not of equal merit, is unique on the whole as a work of great excellence, produced at a time when art was in a very low state of decadence, but goes to prove that here and there one or two artists even in the darkest ages of art, occasionally showed a decided power of expression and technical skill far above and beyond their contemporaries. The finest miniature in this *Psalter* is the well-known lyrical composition "David and Melody," which is designed in the best traditions of the Greek classical period, and has no trace of the usual

Byzantine archaicism or stiffness in the drawing of the figures and draperies. If the subject were not the Biblical one that it is, we should imagine it to have been a copy of a Greek or Greco-Roman wall painting. David is represented seated in the centre of the picture, playing on the harp; at his side on the left is the seated female figure, representing "Melody"; on the right is the figure of "Echo," looking at the central group; below are various animals charmed by the music, and seated at the entrance of a cave below is a male figure representing the city of Bethlehem. There is a strong reminiscence here of the classical theme of Orpheus charming the animal creation with his music, a subject often repeated in the Catacomb paintings, and in later times in mosaics and frescoes, where the figure of Christ was represented like that of Orpheus. Some of the other illustrations in this *Psalter* are of great merit in design and in freedom of execution, while others, evidently the work of illustrators of lesser ability than some of their collaborators in this manuscript, show the usual Byzantine characteristics in the lean and elongated figures with their tight and closely-clinging draperies. Evidently this *Psalter* has been widely known and recognized very early as a model worthy of copying, for many other miniatures of the twelfth and thirteenth centuries exist which are copies of those contained in the Paris *Psalter*, though generally inferior to them in execution.

A noteworthy series of miniatures illustrates the *Codex Rossanensis*, a Byzantine manuscript of



Harley Roll Y., B.M.

**LIFE OF ST. GUTHLAC OF CROYLAND,
LATE 12TH CENTURY**

the sixth century, preserved in the Cathedral of Rossano in Calabria. The subjects of the miniatures include scenes from the life of Christ, compositions which are common to those in many other manuscripts and which have been freely adopted by Duccio, Giotto, and many other artists of later times, as models for their own work; notably such scenes, as Christ's Entry into Jerusalem, The Raising of Lazarus, Gethsemane, and Christ before Pilate, where the design and figure grouping are little if at all altered. The subjects in this *Codex* are, many of them, identical in composition with those of the mosaics of the Sicilian churches.

The explanation, in a great measure, of the rigid observance of traditional composition of sacred subjects has been traced to the decrees of the Eastern Church, which were made and promulgated by the Nicene Council of prelates in A.D. 787. This assembly decided that the fathers of the Catholic Church would be responsible for the pictorial composition of Biblical subjects, and not the artist, he only being allowed to treat the subject in his own way as far as the methods of painting or execution concerned him, but the traditional composition would be the task of the fathers, and not the concern of the artist. Whether this arbitrary control by the Church of the artist's imagination was a good thing or not for the advancement of art, is a moot question; if it tended, as no doubt it did, to the production of numerous works throughout subsequent centuries, which more or less had a family likeness

to each other, on the other hand it served at least as a check on the production of, what might have been, the bizarre and extravagant rendering of sacred subjects by inferior artists; and although it retarded, it did not ultimately prevent, as every one knows, the progress and development of genuine art in Italy. It was no doubt the decrepit state of art in the eighth century that led the holy fathers of the Greek Church to dictate to the artists of that period, for it can hardly be thought that a great artist engaged in the practice of a living art would tamely submit to the fettering of his imagination by either churchmen or laymen. We can therefore come to the conclusion that few if any artists, even of average ability, existed in the eighth century, unless we admit the craftsmen and copyists, who were engaged in the making and reproduction of various works in the minor and more purely decorative fields of art, as worthy members of the select company of creative and original artists.

The recipes for picture making invented by the fathers of the Greek Church are to this day still used by the modern Greek artists who paint the icons, or sacred pictures, which usually decorate the iconostasis, or great screen that separates the altar from the rest of the church in all countries where the Greek form of Christian religion prevails. The carrying out of the Nicean decrees, as far as art was concerned, was enormously helped on by the great number of craftsmen who were sent out from Constantinople, not only to Italy and the West of Europe, but



Cotton MS., B.M.

SCENES FROM THE LIFE OF CHRIST: GERMAN, LATE 12TH CENTURY

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also to the more northern Slavonic countries, where they were employed in executing great and small works in fresco and miniature painting, mosaic, enamels, metal-work, and carving, mostly as church decorations and ritual objects. Greek missionaries introduced Christianity and Byzantine art at the same time to the Slavonic nations, for the missionaries were also artists and craftsmen.

The sacred icons and the gaudy brilliance and stately ceremony of Byzantine worship appealed intensely to the Huns of Bulgaria, and more especially to the Russians, whose conversion to the Greek forms of Christianity was accomplished under Wladimir the Great, in A.D. 988, by the aid of the Byzantine monks from Constantinople. So to-day the devotee of the Greek Church regards the icon, which is still designed and painted as it was in the tenth century, as a sacred thing in itself, a sort of established fetish, the form of which can no more be altered than the established form of their religion itself. As art declined in the Byzantine Empire, even a greater decay came to it in the countries which had embraced the Greek Christianity, and the earlier works were simply copied and reproduced over and over again, each effort becoming more dreary, more sombre, gloomy, and lifeless than its predecessor, if that could be possible. The Russian and Bulgarian sacred pictures of Christ, the Madonna, and the Saints gradually assumed a dirty-brown colour in the flesh-tints, the figures becoming more sorrowful in expression, having elongated heads and lifeless hands and feet, all painted very flatly

in accordance with recipes and Byzantine traditions. The draperies, however, were not only rendered in gorgeous colouring, which became more gaudy than harmonious, but they were often, and are now, made of thin metal-work of silver and gold, but sometimes of tinsel, and executed in embossed or repoussé work and made to stick out from the painted flesh portions of the picture. These productions from their weird appearance may be classed as artificial spectres of sacred personages rather than objects of art. The manufacture of these works was carried on chiefly by monks and nuns in the monasteries, who simply used tracings of old Byzantine designs, and reproduced them in great quantities, after the old recipes.

Manuscript directions by some of the old Byzantine artists for the use of painters and decorators still exist, and for centuries during the Middle Ages, and later, churches and monasteries were decorated with subjects and coloured in accordance with the directions laid down in these old manuscripts. One of these Greek guide-books, or manuals, was said to have been compiled by Pansellinos, a Byzantine painter monk of Thessalonica, who died in the eleventh or twelfth century, but this manuscript was quite likely a copy of a still older document, for such manuals were used by Greek artists as far back as the sixth century.

M. Didron, the French archæologist, relates that when he visited the Monastery of Mount Athos, in Greece, where there are over 900



Cotton MS., B.M.

THE LINDISFARNE GOSPELS : ANGLO-IRISH, ABOUT A.D. 700

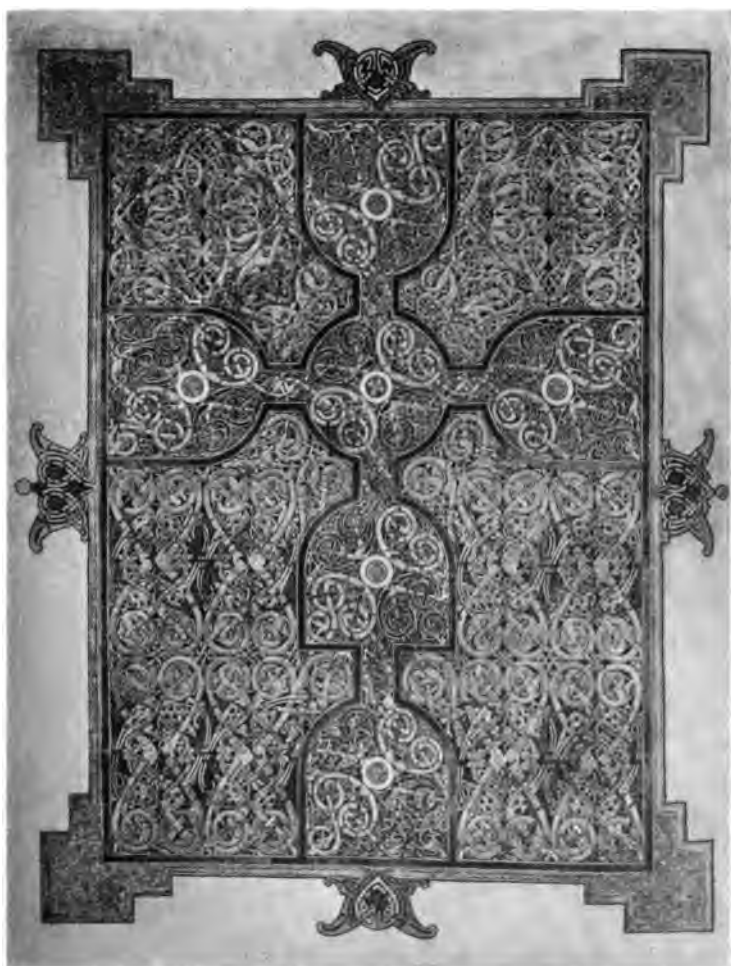
churches, chapels and oratories, he found nearly all of these filled with frescoes, and he had an opportunity of seeing the monks decorating a monastery wall with frescoes, the work being executed in accordance with the directions laid down in a fifteenth century copy of an old Byzantine manuscript, or manual, compiled by the monk Dionysius of the Monastery of Furna, near Agrapha, assisted by his pupil, Cyril of Chio. Didron found that the monks at Mount Athos possessed several copies of this manual. At this place thousands of sacred pictures on wood are painted and exported to Russia, Turkey, Greece, and the Balkan States, for it has been noted for the last few centuries as the Academy of Greek painting, where most Greek artists go to study and practise their profession, and here, at Mount Athos, the painter-monk, Pansellinos, is still regarded as the founder of the present style of Byzantine painting.

The old manuals contained written directions of the technical processes of painting in fresco and on wood panels, explaining single figures, modes of grouping them, their distribution on the walls, their attributes, and inscriptions; also how tracings were to be made, the preparation of the wall, the nature of the colours, and the grinding of them, as well as the methods of technique. They also supplied directions for the treatment and design of every possible sacred figure and scene, and also for their proper situation on the church walls. The same directions served usually for the subjects of miniature paintings of

Byzantine origin, and were even carried out in many of the early French, German, and Anglo-Saxon illuminated manuscripts. It may be seen from this how completely the influence of the Greek Church acted as a petrifying element for the conservation of the rigid and monotonous forms of Byzantine art, by preventing any expression of the artist's imaginative powers, and so reducing him to the level of a mechanical craftsman or artisan.

Before the days of Cimabue, however, there were many signs in Italy, and also in France, that art was gradually becoming unshackled from its Byzantine bondage of centuries, and in contrast to the rigid and mechanical copies of Greek painting there arose a new and a living art, Western in its conception, based, it is true, on the older traditions, but impregnated with a new breath of life, that came from a study of nature; but its most precious quality was the tentative expression of the artist's individuality which here and there came to light, a new and rare characteristic which was certainly absent from the later phases of Byzantine art.

The great Umbrian school of painting, developed in Perugia, Urbino, and Gubbio, that produced such famous masters as Perugino, and his great pupil Raffaello, arose from an early school of miniature painters, among the chiefest of whom were Oderisio and Franco Bolognese, both being contemporaries of Dante and Giotto, and who are mentioned by Dante in his *Purgatorio*, Canto XI. The early Umbrian painting, as well



Cotton MS., B.M.

THE LINDISFARNE GOSPELS : ANGLO-IRISH, ABOUT A.D. 700

as much of Perugino's work, bear the distinct characteristics of miniature painting, such as the light, gay, and transparent colouring, precision of touch, and neatness in execution, and also having a good display of delicate and tasteful ornamentation.

CELTIC ILLUMINATION.

The object of the foregoing consideration of illuminated manuscripts was an attempt to explain the position they held in relation to the development of Italian painting, but there is another great class of illuminated manuscripts, the Irish Celtic *Books of the Gospels* and *Psalters*, so distinctive from the Byzantine and Roman manuscripts that they demand here a few words of description.

The most important part of the decoration of classical manuscripts consisted, as we have seen, in their miniatures, or small compositions of figure subjects and certain pictorial scenes, while on the contrary, in the Irish Celtic illumination such figure compositions are exceedingly rare, and are certainly the least important part of the genuine Irish work. But if the Irish scribe did not prove himself a master in the art of figure-drawing and painting, he has never been excelled in his own peculiar art, as a designer, a draughtsman, and as a painter of purely ornamental art and conventional forms derived from nature.

Celtic illumination was practised in Ireland by the artist-monks of the seventh, eighth, and ninth centuries. At least we cannot say with sufficient

certainly that the best examples were produced before the ninth century, although it is more than likely that there was a living school of Irish art much earlier than this date, for it is hardly possible to suppose that such a magnificent monument to the genius of the Irish scribes as the *Book of Kells*, could have been designed and executed with such marvellous skill without having centuries of tradition and development behind it. This beautiful book is thought to have been executed in the Columban Monastery of Kells, in Meath, where it certainly remained from the beginning of the eleventh century until 1541, the time of the dissolution of the Abbey. It afterwards came into the possession of Archbishop Ussher, when with his other books, in 1661, it found its present resting-place in Trinity College, Dublin, where it is undoubtedly the greatest and most precious treasure of the College Library. The wonderful design, draughtsmanship, and above all the execution of the illumination in this *Book of the Gospels* are well known to almost everybody, so that it will be necessary only to say here a few words as to the general style and character of Irish illuminative art. This book is now in the Trinity College, Dublin, as well as the *Book of Durrow*, the *Book of Dimma*, all books of the Gospels, to which we may add the *Book of Mulling* and the *Ricemarch Psalter*, the last-named being a work executed in the Irish style by Ricemarch, the Bishop of St. David's, Wales, in the eleventh century.

The ornamental and decorative forms which



Egerton MS., B.M.

GOSPELS : SS. LUKE AND JOHN ; ANGLO-IRISH, LATE 9TH CENTURY

are found in Irish illumination may be divided into a number of sections, among which are the highly conventional and rude representations of the human figure, as those of the Evangelists, angels, and other personages, all of which are drawn in a rude style, though often designed to fill admirably the spaces they occupy, and with a feeling of decorative fitness. While most of these figures are clearly developed from Byzantine sources, yet some of them have other characteristics that remind us of ancient Mesopotamian and Egyptian art. These decorative figures are of a type of weird and solemn imagery that is half ornamental and half symbolical, and have been used by the Irish scribes not only to decorate panels and other spaces, but often as terminals to bands or lines, or to the more important initials of the pages. Next in order may be noted the animal and bird forms which are largely used in Irish Celtic art. Although the class of ornament which is composed of these natural forms in combination with, or without, interlaced line endings is made up of what may be termed "corrupted" forms of animal life, with their mysterious lacertine twistings and crossings of linear ornament, it remains the most beautiful and most important kind among all others that is found in Irish art. Such varieties of animal life as eagles, ducks, dogs, and lions have been freely and skilfully used, their bodies, wings, feet, legs, and tails usually ending in lacertine work and twisted knots, which, though often highly involved in their mazy windings are never obscure or meaning-

less. Some of the purely interlaced ribbon-like ornament is of extreme minuteness and resembles geometric weaving. This type is common enough in Byzantine decoration and also in many other historic styles of ornament, but still the Irish scribes have given to this ubiquitous variety a peculiarity of its own that enables us to distinguish it easily from similar ornament of its class. There is not much plant form used in Irish ornament, and where it is used it does not go much beyond the shamrock, or trefoil; sometimes a rose or daisy form of pateræ is used in a very conventional way, that suggests the geometric setting of a circular jewelled brooch. Spirals and spiral-like forms are very common, including the triskele-shaped form which has been called the "trumpet" pattern, but this is quite likely to have been derived from Scandinavian symbolism. Lines, bands, dots, tartans, lozenges, frets, stepped - patterns, zigzags, chevrons, disks, meanders, and wheel-patterns are found as elements of Irish ornament, most of which are common to other styles, but the space divisions of the illuminated pages, and the original forms of the majestic initial letters and the methods of combination and distribution of the above simple elements in Irish ornamental compositions, together with the remarkable skill shown in the accurate drawing and marvellous execution, places such a work as the *Book of Kells* above and beyond any effort known in the art of ornamental illumination.

A word as to the colours used in the Irish

illumination. We find red and yellow the most common, and are applied as body colours. Also a velvety black, green in some manuscripts, as well as blue, violet, and purple. The last three colours, however, are not very extensively used. The colours are mostly mineral in their origin, except the purple, which is usually obtained by a glaze of transparent madder over a blue body colour. The beautiful purples in the *Book of Kells* have been obtained in this method, and this purple colour has stood the test of time remarkably well. It may be mentioned that the ancient Irish and Welsh also obtained a beautiful purple from a species of small shell-fish like the cockle, but only in minute quantities, and similar perhaps to the Tyrian purple, which was also obtained from a shell-fish. Down to recent times the Irish peasantry obtained a coarser kind of purple, called, in Irish, *corcur*, from a rock lichen and used this for dyeing cloth. We are more inclined to the belief that neither of the two last-mentioned purples were used in the *Book of Kells*, as they would not have kept their colour so well as the purple in that book, which was clearly obtained by means of a transparent glaze of a madder-crimson over a blue ground. The bright yellow so common in the *Book of Kells*, was probably a mixture of opaque stanniferous, or tin white, or possibly zinc white, and a yellow derived from the saffron plant, which the ancient Irish used very much to dye their woollen garments. In any case, there are no lead or chromate pigments employed in the illumination of this

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magnificent book, notwithstanding the assertion of some critics, that lead colours were used, for if so, the red and yellow colours would have darkened greatly, and otherwise changed their hues centuries ago, and not have remained in their comparatively brilliant state at the present day to reflect their lustre and beauty.

CHAPTER VIII
TECHNICAL METHODS OF TEMPERA,
OR DISTEMPER PAINTING

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CHAPTER VIII

TECHNICAL METHODS OF TEMPERA, OR DISTEMPER PAINTING

ACCORDING to the testimony of Pliny, tempera painting, as practised by the ancients, was invented by Ludius, a Roman painter who lived in the time of Augustus (*circa* 50 B.C.), but it is certain that the Egyptians and other old nations were acquainted with tempera methods thousands of years before this date, and quite likely that they used the egg medium, as well as certain glues and gums, as binding vehicles for their colours.

The ancient Greek painters worked in two methods of panel painting, one of them being in the wax medium, and the other in tempera. Although we have no direct evidence as to the kind of size they tempered their colours with, when painting on dry surfaces, we may safely assume that egg-size would be one of the mediums, if not the usual one, and the ancient receipt was passed on to posterity, as it was the favourite medium used by the Byzantine Greeks, and by the Italians up to the fifteenth century, and even later, on panels, dry walls, and illuminated miniatures. Besides, we may be fairly sure that such a convenient and easily made tempera vehicle as egg-size, would be well known in classic

times, and used in preference to glues, for the reason that, unlike the latter, it did not require to be kept hot when using it. It was therefore the most convenient, as well as the most perfect form of size for panel picture painting, or for any kind of painting on dry surfaces. It had also the property of drying very hard, so that it formed an almost waterproof surface on the painting, and there was no fear of the oil or spirit varnish which was applied to tempera pictures, to protect them, ever penetrating such a firm medium to injure the colours that were tempered with it.

Pliny mentions the use of egg-size as a gilder's mordant, and to mix with certain colours, and also its medical uses, but not in connection with its common use in tempera painting. This, however, should not be taken as a proof that egg-size was not a common tempera medium in his time.

Cennini's *Treatise* contains many references to the use and the making of tempera mediums for painting on panels and on dry walls, or *a secco*, as this method of painting is so named to distinguish it from other kinds, such as the wet, or buon fresco method.

The old painters, up to the time when oil painting superseded tempera for panel and canvas pictures, used several kinds of size to temper their colours, such as glue made from parchment, or from cuttings of horns, hoofs, and bones of animals, but not to any extent compared with the use of egg-size. The latter may be said to have been the favourite medium of all the early Italian and



Add. MS., B.M.

MINIATURE CUT FROM A PSALTER, 13TH CENTURY

Flemish painters who executed their works on dry surfaces.

They used the egg medium, which was made in a variety of ways, namely :—The yolk of the egg beat up in clean water; the yolk and white, or the whole egg beat up in water; the white alone in water (this, however, was more frequently used as a preservative glaze over either tempera or oil pictures, and as a gilder's size), and the yolk alone, to which a little juice of the fig tree was added and the mixture thinned with water, or sometimes with vinegar or wine. Cennini mentions these forms of egg medium as being excellent for use in painting on panels and on dry walls. The terms "glue" or "egg-glue" were sometimes applied to the egg mediums. Water, or very weak size, is used to dip the brush in when painting in distemper.

PANEL PAINTING.—As regards the technical methods of painting in tempera on panels, the old Italian masters, following the Greek practice, prepared their painting grounds by sketching and fastening down canvas or linen cloth over wooden panels. The latter were previously prepared from boards or planks of well-seasoned timber of lime, poplar, or willow tree. The boards were sometimes dovetailed together, or joined by means of a strong glue, similar to the modern carpenter's glue, or with a glue made from a preparation of cheese and lime. The canvas cloth, either in one piece or in several strips, was stretched and glued on the surface of the board which, in cases of old work, had previously been coated with a thick

gesso ground; and on this gesso ground, while it was still in a soft or wet state, the canvas or linen was laid and so embedded in the soft gesso. On the cloth, when thoroughly dry, was spread several coatings of gesso, consisting of a mixture of chalk, whiting, or gypsum with glue size. The first coating was rough in texture, and when dry, a second or third coating of a finer texture was applied, which was brought to an exceedingly smooth and polished surface by scraping, filing, and glass-paper rubbing.

This provided a white, smooth, and absorbent ground, on which the drawing was outlined, or very carefully engraved. The painted flesh parts of the picture were then, generally speaking, treated with a solid or flat tint of grey green (*verde*), which formed a sort of middle tint, on which the lights and shades were painted in their proper places, by an elaborate system of careful stippling, or hatching in lines. The lights were usually of a warm tint, especially so in the older work, and the shadows a brownish or golden green, while rosy tints were stippled in for the carnations of the cheeks and lips. When all the modelling of the flesh tints, in light and shade, was so far accomplished, after great labour expended in getting the required roundness of forms, the whole work was covered with thin glazes of very transparent colour, which operation served to fuse the various tints, without destroying their crispness, into the required appearance of solidity. The transparent glazes would of course vary in hue, or be warm or cold, according to the general tone



Egerton MS., B.M.

**PSALTER OF MELISSEDA, QUEEN OF JERUSALEM, BYZANTINE :
A.D. 1131-1144**



and effect aimed for. Glazes were used to a great extent by the early Sienese and Florentine painters, who worked in tempera on gesso grounds, for without the use of such glazes it would have been hardly possible for them to obtain that careful finish which characterizes their work, notwithstanding the elaborate stippling employed with the more solid colours.

Draperies in tempera paintings were executed in a more direct and franker method than that which obtained in flesh painting, for although a certain amount of stippling was often employed in drapery painting in order to get the required degree of finish, it was hardly ever done to the same extent in draperies as it was in flesh tints. Consequently, as a rule, the draperies in the old Italian pictures and wall paintings remain fresh, clear and bright, in contrast to most of the flesh painting, which in the course of time has become brownish, heavy, and dull.

The great difficulty experienced by the old painters, when working in tempera, to represent anything like the tints and tones of flesh colours, as they appear in nature, led to an elaborate system of stippling, hatching, and glazing, for the nature of the materials used, and the rapid drying of the medium, prevented the colours from being fused together before they had dried on the surface, and hence the resort to stippling and glazing. This difficulty will be better understood if we compare it with the comparatively easy way in which colours may be fused together in oil-painting methods, and which so produces a

finished appearance without requiring any after stippling.

However brilliant and luminous the flesh colouring of the old tempera paintings may have been when first painted, it was inevitable from the numerous superimposed tints employed, in order to get some semblance of nature, and from the extremely delicate and laborious method of execution, that these portions of the work would in time become darker, yellower, or colder, and that the delicate hatchings and thin glazes would be easily abraded or destroyed by rubbings or cleaning.

On the other hand, draperies and other portions of tempera paintings being executed with a greater impasto of pigment in a solid and direct manner, have kept their colour and original effect better than the flesh portions, and the glazings on the draperies and accessories were nearly always applied in the nature of tinted varnishes, which further accounts for the good condition of these parts of the paintings.

Tempera paintings on panels, such as altarpieces and portable pictures in frames, have lasted longer, and kept their original condition much better than tempera work on dry walls, though both may be executed, up to the final varnishing, in the same methods. The reason for this is easily understood, namely, that a protective varnish was always applied to pictures on wood or canvas, but which could not be used in wall tempera, without imparting an undesirable glossy surface. Tempera paintings on walls if



Add. MS., B.M.

SOMME LE ROI : FRENCH, ABOUT 1300

not protected by a varnish do not last long, as we know by the bad state of such work wherever it has been done in conjunction with buon fresco. Unvarnished tempera, executed on wood, canvas, parchment or paper deteriorates also very quickly, unless it is well protected by glass, or kept enclosed as in a book from air, sunshine, dust, and from the liability of been rubbed.

In the best periods of Italian tempera painting, the fourteenth and fifteenth centuries, draperies were as a rule painted very simply, the artist usually mixing at first about three shades of the desired colour, one each for the broad lights, the middle tint, and the shadows. When the work was finished as far as possible with these three tints it would present a monochrome effect modelled in light and shade, when the final touches of sharp high lights and accents of deeper darks in some parts of the shadows would give the complete finish. Accidental colours that might be reflections from surrounding objects were rarely attempted, especially in the works of the Italian Primitives, although we often see that most of the Italian masters coloured the lights of certain draperies more or less in tones that were complementary to the general or local colour; for example, green draperies would often have reddish lights, and blue draperies a warm yellowish, or warm greenish lights, etc. This practice was common until after Raffaele's time with the Italian and also with the Flemish artists.

There is an interesting study of a man's portrait in the Dresden Gallery, by Pinturicchio, painted

in tempera, about the end of the fifteenth century. This work furnishes a good example of tempera methods in flesh painting, as the mode of execution and the colours employed illustrate not only the tempera methods of that time, but might well serve as an illustration of such work that was done two or three centuries earlier. In this study we can see the usual grey green ground, verde (*verdaccio*), which has been laid on in a flat tint all over the face; the modelling of the light and shade is obtained by the use of a yellowish red, and the rosy carnations are hatched in definite lines over the green, which is allowed to be clearly seen in the semitones; darker and warmer hatchings are to be seen in the shadows, but evidently the work has not had the usual transparent glazings, which makes it all the more valuable as a highly interesting illustration of Italian tempera methods where glazings have not been used. This work has been varnished, and is in good condition.

The varnishes that have been used in tempera painting are described in Chapter XII.

Some of the earliest examples of tempera painting in Central Italy are the painted Crucifixes of the eleventh and twelfth centuries; one of the oldest of these is the colossal Crucifix in San Michele in Foro, at Lucca, and is the work of an artist of the eleventh century. The Saviour is represented as an erect and well-proportioned figure. The painting is in tempera, executed on a primed canvas, which is beaten into the gesso ground that covers the wood foundation. Some parts of the figure are raised in relief, and the



Arundel MS., B.M.

PSALTER OF ROBERT, BARON DE LISLE : ENGLISH, EARLY 14TH CENTURY



Arundel MS., B.M.

PSALTER OF ROBERT, BARON DE LISLE : ENGLISH, EARLY 14TH CENTURY

work is therefore a combination of plastic and flat methods of execution, like many others of the eleventh and twelfth centuries. In some instances, in those days, these Crucifix paintings were executed on parchment stretched on the wood, instead of canvas.

The flesh colours in the earlier Crucifixes were either of a uniform yellowish brown colour, or of a dull flesh tint with green half-tones and reddish shadows. As a general rule, in many other Lucchese Crucifix paintings the chief features of the execution consist in the rendering of the modelling of the flesh tones by parallel or concentric lines of red, blue and white, with the anatomical articulations in black. The preparation colour for the flesh was usually a grey green, or verde (*verdaccio*), which was similar to the tint used as a half-tone, or middle-tint, by the later Italian artists in their flesh painting, especially in panel pictures.

Early Sienese art is noted for its mixture of relief-work and painting; in some cases glass stones were embedded in the nimbi of the saints and in other parts of the accessories. Gold was frequently used for backgrounds, and as shot lines in draperies to enrich them, as well as for the nimbi of saints, and in various ornaments.

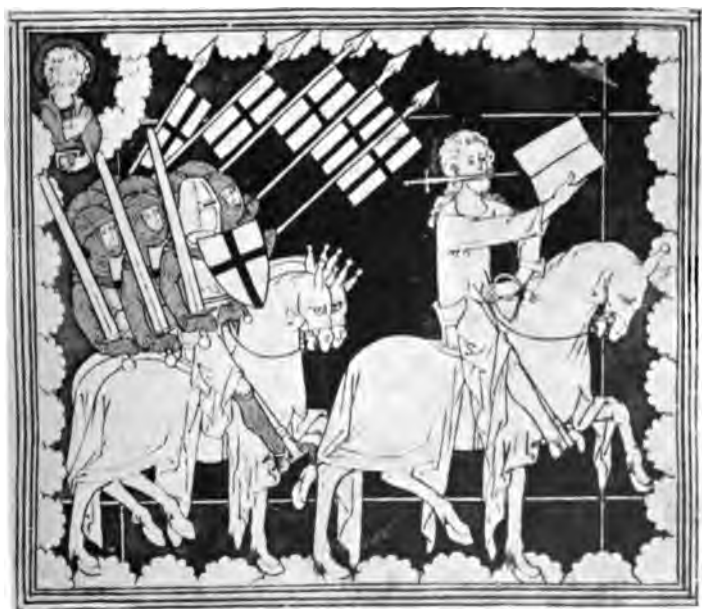
Prior to and during the time of Giunta, of Pisa, who lived in the first half of the thirteenth century, the practice of stretching canvas or linen cloth and fastening it on wood with glue was a very common one with the Byzantine painters, who no doubt learned this method of preparing painting grounds

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from the Greeks and Romans, and who in their turn followed the Egyptians, to whom this method was well known.

There is an interesting example of a painting executed on canvas, stretched and embedded in gesso on a wood panel, consisting of an altarpiece by the painter Margaritone of Arezzo, in the National Gallery (No. 564). Margaritone was born in 1236, and this masterpiece of his is still in good condition. It affords a proof that paintings executed in tempera on a gesso ground spread on canvas, which has been securely glued to a wood panel, have lasted longer than works which have been executed in almost any other method. Vasari, writing in the sixteenth century, speaks of this altarpiece by Margaritone, and expresses his surprise that "a picture on canvas should have lasted so long." It is now more than another three centuries older, and is still in a good state of preservation. We cannot be surprised at this, when we find that the Egyptian coffin paintings, which have been executed in a similar method, are still well preserved after a period of four or five thousand years. Modern artists might be safely advised to adopt this time-tested method of preparing their painting grounds.

Tempera painting, either on wood or on canvas, was the favourite method of the Italian painters from the earliest times up to the adoption of oil painting in Italy, and was carried to great perfection in the works of Ghirlandaio (1449-1494) and Botticelli (1444?-1510).



Royal MS., B.M.

APOCALYPSE, IN FRENCH, EARLY 14TH CENTURY

CHAPTER IX
ENCAUSTIC PAINTING

CHAPTER IX

ENCAUSTIC PAINTING

ENCAUSTIC, or wax-painting, and the fixing or finishing of the same by the application of heat, was practised by the ancient Greeks and Romans, as one of the methods of painting on panels and on walls. It was also a favourite method of painting employed by the early Christian artists, and was practised, though in diminishing degrees, until the middle of the fourteenth century, and even a little later, when it became obsolete.

From the fact that wax-painting is not mentioned by Cennini in his exhaustive treatise on painting, written in 1437, it would appear that it was not practised in his days, or even for a long time previous to the date of his writing, probably not after Giotto's time.

In the National Gallery, London, there are ten interesting examples of Greek or Greco-Roman encaustic paintings on wood, of the second or third centuries. They consist of life-sized heads, and are portraits taken from mummy cases, discovered by Professor Flinders Petrie in an ancient cemetery in the Fayûm district of Egypt, in 1888. Their freshness of colouring and their good state of preservation are testimonies to the permanent qualities of encaustic, and to the prevalence of this method of painting in the early Christian

times. In the notice of Greek and Roman painting in Chapter IV of this volume mention has been made of the use of wax in the general application of colouring to buildings, and in the colours used for the painting of the ornamental polychrome patterns on the Greek temples, as well as being one of the ingredients in the varnish-like medium applied as a tinting coating to statues, columns, etc. This ancient Greek wax-varnish was known as "circumlitio," and was often used in its pure state on statues and columns, when its pale yellowish tint would slightly tone the white marble to a warmer shade, but sometimes it was mixed with colours, as in the "*variata circumlitio*" mentioned by Seneca, and was then applied as a tinted varnish to walls, columns and statues. The former colourless cerate (wax mixture), according to Vitruvius, was used as a finishing varnish to protect, and also to revive the colouring of paintings and polychrome decorations that had been executed on the walls, cornices, and ceilings of the temples at previous periods.

Among the uses of wax-painting and varnishing as a protective covering of wood and stone surfaces, etc., and in the coarser forms of decoration, the ancient Greeks used wax varnish also for the painting of their ships. Not only did the Greeks paint their ships in order to protect the vessels from the action of the sun and weather, but they also decorated them in polychromy. We have evidence that even some distinguished artists began their career as ship decorators, notably Protogenes and Heraclides, whom Pliny mentions

as "painters of ships," and who subsequently became famous as tempera painters. Homer speaks of the painted ships of his time. Pitch, thinned with naphtha, was always employed by all nations, and quite likely in prehistoric times, as a protective coating on ships to preserve the wood from the action of the water, and to make the joining of the timbers watertight, but the Greeks used not only a fine sort of pitch, but also wax dissolved in naphtha, which they employed as a vehicle for their colours in ship decoration as they also did in other forms of encaustic painting.

From all accounts we find that the Greeks always sought to obtain a shining or enamelled surface on their walls, and even on their tempera paintings, so the common use of wax in their wall paintings afforded the means of obtaining this desired end, for although the wax colours or varnish would dry with a mat or dull surface, after being first applied on the smooth and finely stuccoed walls, the surface was capable of receiving a very high polish by subsequent frictional rubbing with cloths. Tempera paintings, on the other hand, obtained their glossy surface by the final application of a resinous varnish which did not contain wax. Among the more celebrated names of the old Greek artists who worked exclusively in tempera we find those of Apelles, Zeuxis, and Parrhasius.

Encaustic painting was at first practised by the Greeks in the coarser and also in the purely ornamental forms of painting, as a protective paint or varnish for woodwork and ornamental

decoration, but was afterwards elevated by them to the more refined uses in the higher forms of pictorial art and figure painting.

The material, methods, and tools employed by the ancients in the practice of encaustic painting have been described by Pliny and other old writers. Though the term "encaustic" literally means "burning in" or "inustion," the process, however, is not so much of a burning in of the colours and medium, but is more of the application of heat during the progress of the work, as well as after the painting is completed, when heat was again applied in order to fuse the colours more effectively, and so give the required finish to the work. From the nature of the wax colours and the metal tools used in manipulating these colours, the paintings before being finally fused by heat, would present a rough and patchy, or mosaic-like appearance, which could only be removed by the application of a gentle heat and final polishing.

Pliny mentions three kinds of wax or encaustic painting. He says: "Anciently there were two modes of painting in encaustic (one), with wax, and (the other) on ivory by means of the cestrum or graver till ships began to be painted. This (the latter) was the third mode introduced, or one in which the brush was used, the wax colours being dissolved by fire." The explanation of the latter passage is, that the wax colours already prepared were first heated, or dissolved by fire, and then sufficiently diluted by an essential oil or spirit, such as naphtha, in order that they might be rendered thin enough to be spread on with a

brush, but that heat was not afterwards applied. We can easily understand that if wax colours, in a warm or heated state, are rendered into a fluid by the addition of a naphtha vehicle, that such mixtures may be spread over surfaces, such as ships or walls, while the mixture is warm, particularly if done in warm weather, and that such surfaces would not require any final application of artificial heat.

The above method of painting can hardly be called encaustic, as no after application of heat is required. It may be compared, if not similar to the modern spirit-fresco system of painting, which is a kind of wax-painting, in which the colours are ground in a medium consisting of wax, gum elemi and copal, dissolved in oil of spike lavender, or turpentine. The only difference between the old and new methods just mentioned appears to be that the colours were rendered fluid in the ancient practice by heat and the naphtha spirit, whereas in the modern method a spirit, like the oil of spike, is sufficient to render them fluid, without the application of any heat.

The first mentioned mode of encaustic painting, by Pliny, was the common, and chief one practised by the Greeks, and may be called modelling, rather than painting in wax. The wax colours were applied with a heated metal instrument, instead of a brush. This instrument, which may have been made in various sizes, was called a "cestrum," or graver; it was pointed at one end, like a stylus, and was slightly curved and flattened at the other end, so that it could be used as a sort of modelling tool. Another tool used was the

“rhabdion,” a small metal rod, flat also at one end, and used probably for the smaller encaustic paintings. The “cauterium” was the heat-giving agent, which either took the form of a metal heater, or was a pan of coals or a small charcoal stove. The cauterium was essential for the final inustion or burning in, which completed the perfect fusion of the roughly modelled wax colours, that would otherwise have a mosaic-like appearance due to the imperfect manipulation of them with the cestrum. This kind of encaustic was used in the wood panel pictures and on walls. Small encaustic pictures, painted by Greek artists, were held in great esteem, and were much prized by the rich Roman collectors.

The second ancient mode of encaustic was that of engraving on ivory with a sharp metal tool, and the design presented in shaded linear work, cut into the ivory, like an intaglio. These lines would afterwards be filled in with various wax colours in a heated state, and the panel, or ivory plaque, would be finally covered with a wax varnish and polished. This particular kind of engraving on ivory and filling in the lines afterwards with wax of various colours would remind us of the Italian sgraffito work, or of the methods employed in champlévé enamels, and must have resembled the latter in its general effect. It appears to have been chiefly adopted by the Greeks for miniature encaustic paintings, and for portraits executed on a small scale.

During the later classic, and early Christian periods, encaustic painting with the brush was the common method practised by the Greek and

Roman artists, the wax being still assisted to flow by the application of heat, and quite likely also further assisted to this end by the addition of some spirit or essential oil. The wax-painted portraits in the National Gallery have been executed in the method here suggested, as it is evident from their technique that some kind of oil, probably naphtha, has been used as a solvent of the wax colours.

This method was so common in the early Christian times that the term "encaustic" was applied to almost all kinds of painting and illumination work.

Wax was used as one of the ingredients of varnishes from very early times up to the fourteenth century, after which it was rarely if ever used, but in recent times wax-painting, or a partial kind of such, has been practised in Germany, France, and Italy, and lately in England; but in all of these later instances the wax is dissolved by an essential oil, such as turpentine, naphtha, and oil of spike, and rarely by the application of heat. In the modern method the sole object of using wax as one of the ingredients of the colour mediums or varnishes, has been in order to obtain a dull or mat surface on paintings, and especially on wall decorations, so that the work may have the appearance of a fresco, and not shine like an oil painting. This aimed-for effect is, of course, quite contrary to the ancient practice, where a shiny or enamelled surface was always sought for, and obtained by rubbing and polishing the work when quite dry.

CHAPTER X
WALL PAINTING IN FRESCO

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WALL PAINTING IN FRESCO

WE have made mention of the practice and great antiquity of fresco painting in the previous chapters on Greek and Roman art, and we have seen that in primitive Greece the interior walls of the edifices were coloured in broad flat tints, and also decorated in a pictorial manner on the wet plaster as well as on the dry surfaces. The wet or *buon fresco* system and the dry or *secco* method, as well as wax or encaustic painting, were each employed by the ancients in the decoration of walls, both in the nature of plain painting of large surfaces, panels, and bands of flat colouring, and in the pictorial compositions of mural decoration.

In the first chapter of this volume it is mentioned that *secco*, or the system of painting on dry walls in *tempera*, was the universal method that obtained in ancient Egypt. It may be also mentioned that wax painting was practised by the Egyptians, but this was in a later period, during the Greek occupation, when, about 330 B.C., wax, or encaustic painting, was introduced into Egypt.

We have also seen that *tempera* painting was largely practised by the Chaldæans, Assyrians, and the ancient Persians, but in addition to this

method of wall decoration, the Mesopotamian people developed the magnificent art of enamelled tile decoration, which probably had its birth in Chaldæa, but blossomed into a fuller and maturer beauty, as a most perfect and enduring form of wall decoration in Persia during the fifth and sixth centuries B.C.

Tempera or distemper painting is the oldest historical method of painting that is known to us, whether employed as in wall decoration, or in other forms of pictorial art, while fresco painting, on the wet lime plaster, as far as we can say, dates from at least 1500 B.C., the conjectured period of the foundation of the Minoan palace at Cnossus in Crete, where Dr. Evans, in 1900-1902, found some portions of lime-plastered walls that were decorated in the buon fresco method. Fragments of ancient fresco painting have also been found by Dr. Schliemann when excavating on the site of the ancient palaces of the pre-Hellenic Mycene and Tiryns of primitive Greece, and still earlier examples of fresco decoration have been found in prehistoric Thera, one of the Grecian isles.

Painting in fresco, on the wet lime plaster, is therefore of great antiquity in Europe, and has been practised in conjunction with "fresco-secco," or "dry" fresco, from very early times. For example, the greater portion of the old wall surfaces would be decorated in flat tints of selected colours, the colours being sometimes mixed with the finishing coating of lime plaster, before the latter was spread on the wall, or in other cases

the colour mixture would be directly applied in the ordinary way to the surface of the wet plaster. In either case the object of obtaining a flat ground colour of the desired tint would be achieved. On such coloured grounds the primitive Greek artist would execute his decorative subjects, which usually consisted of ornamental forms, or crude representations of the human figure, birds, animals, and floral forms, and this decoration was sometimes painted in a direct method on the coloured grounds while the plaster was wet, the true fresco method, but more often the wall surface was allowed to dry before the decoration was executed. But before beginning this decorative painting the dry wall would be well saturated with lime water, and the colours used in a similar way as in fresco, with water only as the medium. This method of wall painting is known as "fresco-secco," but it is not so permanent as buon fresco. It must be understood that the term "fresco-secco" is "lime painting" as practised by the ancients, and is the only kind of fresco mentioned by Theophilus and other old writers, and that the term "secco," as used by Vasari, refers to tempera painting in which there is no lime used with the colours, but egg or glue size only.

The alternative method of painting on the dry wall was in tempera, or distemper, where the colours were tempered with size, made from glue, parchment, gum tragacanth, eggs, or milk, etc. Sometimes the wall decorations of primitive Greece, and of the classic period, as well as those of the Pompeian and Roman edifices, were executed

in the above three methods, each method being used on different parts of the same wall surface. Also the artist, as it often happened, could not always give the required finish to certain subjects, or parts of the decoration, in the limited time that the plaster remained in a wet state, so he would then finish his task at leisure in *secco* or *tempera*, by afterwards working over the *fresco* surface. Small panels, and other limited spaces on the wall were painted in *buon fresco*, as these small portions could be finished properly before the plaster would dry, but larger schemes of decoration, or large surfaces, were usually painted in a more leisurely manner in *fresco-secco*, or *tempera*. This was the practice usually adopted by the Greeks, and by the Pompeian artists.

The finishing of *fresco* paintings in *secco* or *tempera* was practised by nearly all subsequent painters in Italy up to the sixteenth century, though it cannot be said that it has ever proved successful. It was generally condemned as a bad practice, and especially so by the later and stricter schools of Italian *fresco* painting. Wall paintings executed in this mixed method of the dry and wet *fresco* have proved to be far less permanent than those which have been wholly executed in *buon* or wet *fresco*.

Although we have proof that *buon fresco* is of great antiquity, it was more confined, in the practice of the ancients, to small spaces or on panels in the walls that could be finished in about the space of a day's time, and such small spaces would not consequently show any joinings, which usually

marked out the spaces or divisions on the wall, that we see in the buon fresco paintings of the fourteenth and fifteenth centuries in Italy. We may, therefore, be certain that if an old wall painting of a moderately large surface does not show any joinings of the plaster, or intonaco, it has not been painted in buon fresco, for in this method of painting only a portion of the wall surface, limited in size to that amount of surface that can be properly finished in a day's time, can be worked on while the plaster is wet, and any portion which cannot be finished off in the one day's painting must be cut away and a fresh portion laid on, and joined up to it for the next day's work.

Such fresco-painted walls that show no joinings that would indicate the extent of a day's work, have been painted in fresco-secco, a method we have already spoken of, where the whole surface has been prepared all of one piece, by laying on a plaster ground composed of lime and river sand, and in some cases marble dust was added. The mixture of this plaster ground has varied a good deal as to the quantities of lime and sand. Sometimes it has been used in the proportion of three parts of sand and two of lime, and in other instances, three-quarters of sand and one-quarter of lime, or one-third of lime to two-thirds sand, and some artists have used the lime and sand in equal proportions. We might say that the proportions may vary considerably without affecting the durability of the wall surface, provided that the plaster mixture is not made too "fat" with

rather much lime, or too poor with an undue quantity of sand, but experience will teach the artist to work on a plaster surface which contains a much greater proportion of sand than of lime, for on what may be called a poor or sandy surface he can better afford to use his colour in an impasto, and can also venture to use lime in them more freely than he could do on a rich or "fat" plaster. Other great gains on working on a poor or sandy surface are that the finished work will appear more transparent, rich, and luminous, which are the distinguishing qualities of veritable fresco over all other methods of wall painting.

The same kinds of plaster grounds we have been describing have been used in almost every period of art history from the earliest times, both for the wall surfaces on which the fresco-secco paintings were executed, and for the intonaco or final plaster ground in buon fresco. It may be pointed out that the dry surface intended for fresco-secco was usually made very smooth by polishing it with pumice stone before it was saturated with lime water, preparatory to the execution of the paintings, and that on these surfaces, which showed no joinings, such work as ornamental decorations could be executed more freely than in the buon fresco method, where the joinings would interfere with the flow and freedom of drawing that characterizes ornamental forms. For the latter kind of painting, therefore, the secco method is preferable to buon fresco, though it is inferior to it as regards permanency.

The early Italian artists painted in secco like

the Pompeian decorators, for buon fresco painting, which is required to be executed in portions, was not the universal practice in Italy until about the beginning of the fifteenth century, though a few wall paintings were done in this method earlier than this.

Prior to the middle of the fifteenth century, and in instances even later than this date, the Italian fresco painters would appear to have followed out a most cumbersome method of executing wall paintings on the wet plaster, and this procedure has even been recommended, and described by Cennini in the sixty-seventh chapter of his *Treatise on Painting*. The method in question almost amounted to the painting of two works, one on the top of the other, with a coating of plaster between them. It is true that the first painting was executed roughly as a shaded drawing on the first rough mortar coating that was applied to the wall, or on the second, if three layers of plaster were used. The final coating, on which the finished fresco was painted, was called the *intonaco*, and the one immediately under it was the *arricciato*. The intonaco was in some cases very thin and almost composed of the pure lime itself, but mostly it was a mixture of lime and fine river sand, while the arricciato was a very coarse mixture of lime and sand.

In the method mentioned above the Italians of the thirteenth century and later appeared to have worked from a small design, instead of a full-sized cartoon, which they enlarged by means of squares from the small sketch to the full size

on the *arricciato* or rough plaster. This they outlined usually in red, shading and even tinting most of the design in colour on this rough surface; afterwards they covered this with the *intonaco* or last layer of this plaster, taking care, however, to place a counterpart of each portion of the design over the one first drawn out on the underneath rough surface, the squared lines on which acted as a guide to show the artist where to place the design on the *intonaco*, which layer of plaster must have obliterated the underneath painting. We can only imagine, that unless the artist went to the extraordinary length of re-drawing his design on the surface of the final *intonaco*, he must have had a tracing made from the enlarged sketch originally drawn on the rough plaster and transferred this to his final painting surface, otherwise he could not possibly have seen the original enlarged drawing if a coating of plaster, however thin, or lime only, had intervened between his vision and the underneath plaster. In later times this tedious method was abandoned, when tracings were made from full-sized cartoons and transferred to the wall, either by pouncing, or by the use of a pointed stylus, which made an engraved outline on the surface of the soft *intonaco*.

As a rule the Italians laid on a slight tint of *verde* colour before painting in the lights and shades of the flesh portions of their frescoes, and they also followed out this practice in the tempera paintings. Some exceptions to this are seen in the frescoes by the Sienese painters, as in the works by the Lorenzetti and Antonio Veneziano in the

Campo Santo at Pisa, and in the Spanish Chapel in St. Maria Novella, at Florence, where the lights, shadows and semitones of the flesh are painted directly on the white grounds without any verde preparation being used. It was also a common practice to lay a red ground preparation for all blue draperies, and in some cases for blue skies. Neutral greys have also been used as preparatory ground colours for blues. The choice of red as a ground for blue may have been due to the possibility of counteracting the cold tone of that colour, which is so difficult to manage in fresco in point of harmony with the other and warmer colours. It may be pointed out that in the early, and also in later times, when the art of fresco painting was in its zenith in Italy, nearly all the blues of draperies and of skies were painted in tempera, when the plaster surface was dry, and almost invariably on red grounds.

Many works of Giotto, Taddeo Gaddi, his pupil, Fra Angelico, Benozzo Gozzoli, and other Italian frescantì are now only outlines, with the exception of the light verde of the preparatory flesh colour, and the red preparation of the blue draperies and skies, or of such portions that were intended to be finished in blue. We may, therefore, infer from this that the blues and other colours which have disappeared have either been painted in tempera after the preparatory ground colours were dry, or else the vanished colours had been applied to the intonaco surface when the latter was too dry, and in consequence have not been incorporated into the plaster surface, while on

the contrary the ground or preparation colours, which still remain, had been painted on the wet surface very soon after the intonaco was freshly laid on the wall, and this is sufficient to account for their permanency.

We may give one or two examples out of many which may illustrate our statements; for instance, the fresco by Giotto, of St. Mary of Egypt, in the Chapel of the Podestà at Florence, is one of many others where the usual preparation of verde is all that remains of the flesh tints, and the red preparation of the Virgin's mantle, which must have been originally finished in blue; also, in the celebrated fresco of the Crucifixion by Fra Angelico in St. Marco, at Florence, the upper part of the sky is now a dark purplish red, which originally must have been blue, but the latter colour has scaled off, leaving the preparatory red ground. As a rule, large surfaces, such as skies, in fresco were always painted in tempera, or in simple water colours, and not in buon fresco, except in the limited way of laying on the wet plaster some kind of preparatory tint to tone down the white intonaco surface, previous to the execution of the final painting.

Time, damp, dirt, and the restorers, we are informed, have all been responsible for the present decayed state of buon fresco paintings everywhere, but all of these agencies have not been so much the cause of the deterioration of frescoes, as the imperfect technical methods of their execution, for it is quite evident that those fresco paintings which still remain in a good state of preservation

after lasting four or five centuries, have in every case been executed in sound technical methods of painting on the wet plaster, where the work on each portion was finished in one day's time, while the plaster ground was still wet, and no after-painting or retouching has been attempted, either in fresco-secco or in tempera. It may be mentioned that genuine buon fresco paintings may be washed with water, or otherwise cleaned, without injuring the colours, while wall paintings in secco or tempera cannot be washed or cleaned without removing some of the colour in the process.

When we know that it was a common practice with the majority of the Italian painters to finish their buon fresco work in tempera, and in nearly every case to paint the blue draperies and skies in this medium, we cannot be surprised that such portions have been destroyed by subsequent cleanings, and the effect of damp, or moisture on the surface.

If the pigments used in buon fresco painting are confined to a selection of those obtained from such simple earths and minerals that will permanently withstand the action of the lime, and if the painting is completely finished within four or five hours after the fresh intonaco is laid on the wall, there is no reason why this method of painting should not be the most permanent of all methods of mural decoration. Fresco so executed will defy the surface damp of the atmosphere, and the colours will hardly undergo any change for centuries, provided they have been thoroughly incorporated in the wet plaster.

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For a list of the colours that may be safely used in fresco, and for further information on this subject the reader is referred to the author's treatise on *Fresco Painting, Its Art and Technique*, 1909, where the system of the modern Spirit Fresco is also described.

CHAPTER XI

ARTISTS' PIGMENTS: THEIR NATURE AND COMPOSITION, CONDITIONS OF PERMANENCY AND ACTION ON EACH OTHER

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CHAPTER XI

ARTIST'S PIGMENTS: THEIR NATURE AND COMPOSITION, CONDITIONS OF PERMANENCY AND ACTION ON EACH OTHER.

Pigments used by the Early Painters of the Italian, Flemish and other European Schools.

THE pigments used by the ancients were mostly derived from native earths and minerals, and were very few in number. Mention has been made in regard to these in the early chapters of this work, when treating of ancient polychromy and painting. Besides the native earth pigments the ancients used a few other colours that were artificially made. This we know on the authority of Pliny and Vitruvius, who wrote on the subject of the arts in the first century. Before we describe the more important pigments that were used by the painters of the Italian, Flemish, and other schools, it will be necessary to give a short description of those that were used by the ancients, for it must be understood that the same, or very similar pigments, were used by all artists from the earliest historic periods, and that they were merely augmented in number in the course of time; some of them are still in use at the present day that were also employed by the Egyptians two

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thousand years, at least, before the beginning of the Christian era.

WHITE pigments were obtained from lime, gypsum, whiting or chalk, and white lead; the latter was the native *cerusite*, a carbonate of lead which was in use as early as 400 B.C. Oxides of tin and zinc were also used as white pigments from a very early date.

YELLOW pigments were chiefly native earths such as the ochres and siennas.

BLUES.—The finest blue known to the ancients, or in modern times, was that obtained from the *lapis lazuli*, a costly mineral which afforded most beautiful varieties of light and dark hues of the colour known as Ultramarine.

The finest quality of the modern artificial ultramarine blue is somewhat similar in colour to the natural variety, and has the same chemical constituents, and, excepting that it is harsher in hue, it is little inferior in other respects to the lazulite blue.

Indigo blue, or a colour very similar to it, was used by the Egyptians, more particularly as a dark blue dye. This colour seems to have been derived from a kind of fish, and not from the indigo plant. It is the *purpurissium indicum* mentioned by Pliny, and was known to the Italian writer, Cennini, as *indaco baccadeo*. It had little or no claim, however, to permanency.

Some other bright mineral blues used by the ancients were those obtained by compositions of copper, sand, and carbonate of soda, which have proved fairly permanent.

REDS.—As regards red pigments, many shades

of this colour were obtained from the native red oxides of iron, varying from an orange to a purple hue. Besides these the ancients used burnt ochres and siennas to obtain reds, as we do to-day, and we find them perfectly permanent.

The term "sinopia," and its different renderings such as "sinopis," "cynople," "sinopre," "cinobrium," etc., have been applied to different red pigments, over and over again, in classical and mediæval documents, to colours which embrace red iron earths, minium, or red lead, madder-red and vermillion, or the native red cinnabar. The latter word is derived from sinopia, and therefore the true sinopia would simply be cinnabar or native quicksilver vermillion, the native red sulphide of mercury. The sinopia mentioned by Pliny as having been used by Apelles was a native oxide of iron brought from Sinopia, a city of Pontus, also from Egypt and the Balearic Isles. This was probably hematite, the mineral from which is obtained the modern pigment known as Indian red, and not the brilliant red derived from cinnabar earth. It is somewhat surprising to read in the MSS. of Alcherius (*circa* 1400), that "sinopis is a colour redder than vermillion; it is also called cinobrium and mellana, and is made from madder." Cinnabar or vermillion is one of the oldest colours known to the Chinese, as they used both the native and artificial varieties more than two thousand years ago, and Chinese vermillion was imported from China into Europe in the thirteenth century. The native cinnabar was, however, prepared as a pigment and used by artists in Europe at a much earlier date. It is obtained

from the quicksilver mines of Europe, and notably from those of Spain, where it is still found.

From the mass of evidence which has been furnished by the old Roman, Italian, and Spanish writers on artists' pigments we are enabled to come to the conclusion the term "sinopia" from Pliny's time until the fifteenth century was applied to almost any "red earth" that furnished a bright red colour, but that the term was no longer applied to such red earths after this date, but used more particularly to define the most important and brightest of all red earths, namely, cinnabar, or native quicksilver vermillion.

GREENS.—The chief greens used by the ancients were obtained from powdered malachite and from terre verte, a green earthy ochre, also the Grecian green, a kind of verdigris, but some other greens, composed of copper blues mixed with yellow earths, were also used.

Browns were native earths, such as the reddish brown ochres and bituminous earths. Umbers were not in use until the sixteenth century. Blacks were obtained from burnt or charred bones, burnt ivory, charcoal and soot, known as lampblack.

All the pigments mentioned above were not only used by artists from the earliest times to the end of the sixteenth century, but all of them, though in some cases they are under different names, are in use at the present day.

At the present time, however, there are upwards of two hundred colours, many of which are mixtures of two pigments, that are prepared and sold by artists' colourmen, but only about twenty or less of them are reliable pigments.

Description of the Chief Pigments used by the Early Italian, German and Flemish Painters.

WHITE.—Bianco sangiovanni; biacca; gypsum; chalk; zinc and tin oxides. According to Cennini, as stated in his *Treatise on Painting*, 1437, bianco sangiovanni was made from lime, for use in buon fresco painting. His method of its preparation was to pulverize white slaked lime, which was then mixed with water and stirred frequently during the space of eight days; most of the water was then drawn off, and the remaining lime paste, or putty, was made into small cakes and dried in the sun. These cakes when thoroughly dried, he recommends, should be ground very finely in water, this paste being dried again, and ground a second time, in order to improve the white tint.

In the more modern Italian methods the lime-white pigment used in fresco painting is not dried into cakes and ground in water, but is used in its first wet state, after being strained through a fine muslin cloth in order to remove grittiness and impurities. Biacca is a white lead pigment. Cennini says that this pigment "is proper for pictures, and is sometimes used on walls" (by "walls" the Italian writers always meant fresco), but, he adds the warning, if it should be used in fresco, to "beware of it nevertheless, for in time it becomes black." It is doubtful if it was so used to any extent in fresco painting at any time.

Preparations of chalk and gypsum were used in gesso grounds for painting on panels and on canvas. Zinc and tin oxides were used as white pigments in miniature and in pottery painting.

REDS.—Sinopia; cinabrese; cinnabar (vermilion); amatisto or amatito; minium; lake; dragon's blood; terra rossa d'Inghilterra.

The term "sinopia" which has been given to various red pigments has previously been considered on pages 181–2. Cennini has little to say about it, except that he gives it the alternative name of "porphyry," and remarks that it is "a natural red pigment, good for painting either on pictures or on walls, in fresco or in secco." He mentions "cinabrese" as a red pigment, consisting of the finest and lightest variety of sinopia, that a perfect flesh-red colour is made from a mixture of light cinabrese and bianco sangiovanni, and that this colour is not only good for "faces, hands, and naked figures on walls" (fresco), but that "you may make with it beautiful draperies, which on walls look like cinnabar" (vermilion). From this it is perfectly clear that the sinopia and cinabrese known to Cennini must have simply been fine varieties of a native form of hematite, a red oxide of iron, probably similar, if not the same substance as that which is now known as Indian or Persian red, as the quality and properties of the finest and purest Indian red, and its beautiful tints when mixed with lime-white, which have the appearance of delicate lake tints, are exactly such as he describes when sinopia and cinabrese are mixed with bianco sangiovanni (lime-white). Indian red in its purest and unadulterated form is pre-eminently the best of all reds, and is the most permanent that can be used in fresco painting. When used in oil or in water-colour painting its density and inclination to purple cause it to

appear heavy-looking and opaque, but in fresco, when used in tints with lime-white, it becomes almost transparent, and is capable of furnishing a fine series of rosy tints.

The rich and deep Pompeian red, used by the Greco-Roman decorators, on the interior walls at Pompeii and Herculaneum, more than likely was composed of a mixture of a red, corresponding to the modern Indian red, and a madder lake, and to prevent the dense or heavy appearance of such a mixture it was spread over a ground of luminous white stucco, when the painting was executed "a secco," so that the white ground would help to impart a lasting transparency and brilliancy to the superimposed colour. When a red ground was required on the wet plaster, as in fresco, a little lime-white would be added to the red mixture to reduce its heaviness, and improve the brilliancy of the colour.

Tuscan red is a name that is given to a mixture of Indian red and madder lake.

CINNABAR, or quicksilver vermilion, was found in a native state, and also made artificially by the friars and apothecaries in Italy, in the fourteenth century. Artificial vermilion is the red sulphuret of mercury, that is, a compound of mercury and sulphur in the proportion of about one hundred parts of mercury to sixteen of sulphur, to which some potash lye is added in the manufacture. The word "vermilion" is derived from "vermiculus," signifying a little worm, the term being originally, as the French "vermeil," applied to the crimson lake pigments made from the "coccus ilicis" and the "coccus cacti," or cochineal insects, and often

to almost any colour of a ruddy or rosy hue. These insects were called "kermes" by the Arabs. An infusion of the female insects precipitated on alum furnished the pigment kermesino, or cremesino, from whence is derived the word crimson. Vermilion though a fairly reliable colour has a tendency to turn brown or purplish in fresco, and even in oil, unless it is glazed with madder, or if used alone in oil-painting it should be with a varnish medium. When used in fresco it should not be applied directly on the lime plaster, but should be laid over a ground colour of Indian red, or red ochre, venetian red or light red for example. By washing, however, the vermilion pigment two or three times in lime water, previous to using it in fresco painting, it will be rendered much more likely to keep its colour, as this treatment causes the pigment to be rapidly impregnated with the lime, without injuring its brilliancy, and thus being saturated with lime it can be used with safety on the wet lime plaster of the fresco.

AMATITO, or AMATISTO, was the name given by the old writers on painting to a red pigment that was prepared from an exceedingly hard stone, varying in colour from a bright rosy tint to a purplish one, and this has been claimed as the mineral colour which very nearly approached lake in its hue. Some writers have called it mineral cinnabar, but this is a mistake, as the best evidences go to prove that it was a native red hematite, a kind of iron-stone, very hard and fibrous or striated in composition. It was so hard that it had to be pounded in a bronze mortar before grinding it on a porphyry slab.

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The derivation of amatito, like hematite, is from the Greek *haima*, signifying blood. There are two kinds of the amatito mineral, the hard and the soft varieties. The hard kind was employed not only as a colour in painting, but it was cut and polished into certain shapes and used as tools for burnishing gold. The softer kind was known under the name of "matita rossa," which is, literally, a red pencil, or the red crayon, that which was used so much for drawing by the Italian artists. Cennini remarks that the pigment amatito "is proper for walls and fresco; and it makes a good colour such as cardinals wear, or a purple, or a lake colour." It was evidently the colour used in fresco by Giotto and his school, as the nearest one approaching a lake that could then be used in fresco painting, but seems to have not been used after the beginning of the seventeenth century, probably on account of the difficulty of the grinding and preparation of the hard material, and also because that the purplish red hematite, Indian red, was found to be more easily ground and prepared, so the latter pigment eventually took the place that was hitherto given to the amatito colour.

Two varieties of this colour were used formerly by the Spanish painters, the more brilliant of which was known by the name of Albin, and the other, which was in some degree lower in tone, was called Pabonazo.

MINIUM, or RED LEAD, called *cerusta usta* by the ancients, was sometimes used by the old painters on pictures, and in miniature painting, but not on walls. It was not recommended, however, on account of its objectionable qualities of

changing to brown or black in the course of time. When used alone, and not in a mixture with other pigments, and especially when locked up in a varnish medium, it has been known to last a very long time.

LAKES.—One variety of lake, of a crimson hue, called *gomma lacca*, or gum-lac, was a kind of red resin, or resinous secretion of a kind of cochineal insect deposited on twigs of plants. A solution of this resinous substance is precipitated on a solution of alum to make the pigment, which is also known as Indian lake. It was imported from the East, and used as a pigment by the Venetians and early Italian painters, but like the lakes derived from the cochineal and kermes insects, it was not permanent, and all of these pigments were superseded later by the more superior and more permanent madder lakes obtained from the root of the *Rubia tinctorum*, or madder plant.

MADDER LAKE was made in perfection in the Netherlands, and was exported to Venice and other places in Italy, as well as to Spain, Germany, and England. In the first half of the sixteenth century the madder plant was cultivated largely in Zealand; Holland had then the monopoly of the sale of this colour.

In painting, madder lake has generally been used as a glazing colour on account of its great transparency of body. Titian used madder in this capacity over his vermilion tints in draperies, and Rubens, Frans Hals, and others used it as a glazing colour in their flesh painting. When used in glazes, or alone, madder lakes, such as rose madder and madder carmine, are reliable and

permanent pigments, but they should not be used in mixtures with white lead or chrome yellows, for such metallic pigments destroy them.

All the cochineal lakes such as crimson lake, carmine lake, etc., are extremely fugitive colours whether used alone or in mixture with others, and should not be employed in picture painting. Another very fugitive red colour known as dragon's blood was prepared from the resinous exudation of the tree called *Pterocarpus draco*, which was sometimes used as a glazing pigment when mixed with varnish, but it is easily destroyed when mixed with leads or chromates.

TERRA ROSSA D'INGHILTERRA, or Bruno d'Inghilterra, used by the old painters, is the pigment known as Venetian red, or English red. It is an iron ochre of a brick-red colour and is a useful and permanent pigment in oil, water colour, and in fresco. Like all iron ochres it darkens slightly in time, and should not be used with lake colours. The artificial and common Venetian red is a mixture of gypsum and oxide of iron. It is also made by calcining sulphate of iron, or copperas.

LIGHT RED is a useful and permanent pigment, and is prepared by calcining yellow ochre.

YELLOWS.—The most useful and most important of the yellow pigments known to the ancients, and to artists of all periods until, and including, our own times, were those obtained from ochre earths, such as yellow ochre, Roman ochre, raw sienna, etc., all of which owe their colouring matter to the iron they contain. They are unctuous in their nature and can be depended on as being permanent in any medium.

MASSICOT is a light yellow lead pigment that was used by the Italian and Flemish painters, though it was condemned for its liability to darken when used with lead white, or with almost any other colour. It is really the same thing as minium, or red lead, with a lesser degree of oxidation.

NAPLES YELLOW is the *giallorino* of the Italians. It is an artificial pigment, formerly consisting of a compound of lead oxide and antimony, but now composed of zinc and antimony, which makes a more permanent colour. Much of the so-called Naples yellow is, however, now made from zinc or lead white and a little cadmium and ochre, or other yellow, added in varying proportions in order to obtain the pale, medium, or deep varieties of the imitation colour.

ORPIMENT (*auripigmentum* of the ancients), or king's yellow, is a colour of a fine golden hue, and consists of a combination of the sulphide and oxide of arsenic. It is, therefore, highly poisonous. At one time it was a favourite colour on account of its brilliant hue, but in mixtures with other colours it has proved thoroughly unreliable, as it turns black when mixed with white lead, with ochres that contain iron, and with the chromates, as all colours do that contain arsenic or sulphates. If used at all, it should be alone; and not mixed with or even laid *under* any other colour, as it destroys any colour that is glazed or superimposed on itself. It can, however, be used *over* any colour, except verdigris, without injury to itself, and therefore it was valuable as a finishing colour in the high lights of draperies, in which positions

it was used by some of the old Flemish painters, and by heraldic painters also, where it could be safely used in a flat tint to represent gold. Miniature painters have also used it in lieu of gold grounds. Cennini strongly condemns this pigment, but he admits that it is "proper for heraldic painting," that is, that it should be used alone, either as a finishing colour, or in flat tints, as in backgrounds of miniature painting. Risalgallo, or realgar, is red orpiment; it is a native ore in which arsenic and sulphur are combined. It is of a bright orange-red hue, and is chiefly found in the fissures of the craters in volcanic and primitive mountains. It can also be made artificially. This pigment has all the faults of the yellow orpiment, and can only be safely used under the same conditions as the latter colour.

The old painters seem to have been fascinated by the beautiful golden yellow hue of orpiment, as being "the finest yellow that is to be found." Eastlake quotes De Mayerne, the Swiss physician to James I and Charles I of England, and author of the MSS. dealing with the chemistry of colours, that Vandyck, who was known to the writer, made use of orpiment, and he goes on to say: "In making use of it, it should be applied by itself; the drapery (for which alone it is fit) having been prepared with other yellows. Upon these when dry, the lights should be painted with orpiment: your work will then be in the highest degree beautiful."

The damaged and faded appearance of some of Sir Joshua Reynolds's portraits are due to the use of such colours as orpiment, carmine lake, and

asphaltum, and particularly to the mixture of the former two pigments with white lead. Northcote in his *Life of Reynolds* says that at a certain period, about 1755, "Carminc, orpiment, and blue black were at this time the representatives of red, yellow, and blue on Sir Joshua's palette." These im-mixtures of carmine and of orpiment with white lead would certainly be disastrous. In his late years Reynolds used also the treacherous asphaltum, and even mixed it with other colours, as well as using it as a glazing colour, with the result that it prevented the colours from drying, as it never really dries itself, except on the surface film, and when varnished afterwards the drying of the varnishes tore the underneath colours into numerous cracks, which has partially destroyed much of his fine painting.

GAMBOGE is a transparent bright yellow. It was used by the Dutch painters, and by the leather-workers as a glaze, or lacquer. It is a vegetal gum which exudes from various trees and is more useful and more permanent in water-colour than in oil. This pigment does not appear to have been known to Cennini. A certain yellow mentioned by him, under the name of *Arzica*, a chemical colour, which is now unknown, has been suggested as the pigment gamboge, but we have no positive proof of this, and besides a chemical colour could not be derived from a tree as gamboge is.

There were a great many varieties of yellow lakes used by the Dutch and Italian painters, all of which were chiefly obtained from the yellow, or greenish-yellow, colouring matter found in various

berries, the inner barks of certain trees, and from flowers, such as the broom and saffron. The colouring matters derived from these vegetal sources were precipitated on solutions of alumina in order to obtain the required pigments, which went under such names as Dutch Pink, Brown Pink, Italian Pink, Quercitron Yellow, from the bark of a kind of oak tree, Madder Yellow, Saffron, Safferano, etc. None of these colours, however, could be called permanent, as they are all liable to change to reddish-orange, brown or grey tones, and when mixed with mineral or metallic colours they are completely destroyed. Many of the Dutch flower-paintings of the seventeenth and eighteenth centuries have now blue foliage which originally was green, but the yellows used in their mixtures with blue being vegetal lakes have now disappeared, leaving the blue to show where the yellow lakes have been used. It must be said, however, that when these yellowish lakes are used alone, as in glazing, or with an oleo-resinous vehicle, as in lacquers, they will last a long time, and keep their colour.

For example, Dutch Pink, which is a kind of olive or brownish green, is largely used in coach-painting, and has in this work always proved a sound and reliable colour, when it is locked up well in the varnish. The term "pink," connected with these yellow green pigments, simply means that they are manufactured in the same way as the red or pink lakes and madders.

BLUE.—With the exception of the modern artificial ultramarine, and other varieties of the same pigment, there are scarcely any blue colours

used to-day that were not known either to the ancients, or to the artists of every period from the end of the classical times up to the eighteenth century.

Foremost among the blues, in point of beauty, purity of hue, and permanency, is that pigment known as the genuine Ultramarine which is made from the native *lapis lazuli*, a precious stone found in Siberia and in other places in the East. It is the *azzurro oltre marino* of Cennini, who describes it as "a colour more noble, beautiful, and perfect than any other colour; and its good qualities exceed anything we can say in its favour." The great cost of the native material and the difficulty of its preparation have prevented the extensive use of Ultramarine even in Cennini's time, for with the exception of its employment in miniature painting, and in some instances for the painting of the blue drapery of the Virgin in pictures, and occasionally in fresco, this fine colour had a limited use. As regards its use in fresco painting, it was not often applied direct to the wet plaster, but in most cases it was used as in *secco*, or in egg-size distemper over a ground of a red colour, and for this reason it has generally fallen off nearly all of the old frescoes, and has left the red ground visible, which was first painted on the wet plaster as a preparation for the blue. In some of the panel pictures of the Italian, Dutch, and Flemish artists this colour is usually found to have been laid on very thinly; this might have been so for two reasons—one, that the pigment was too costly to permit of it being laid on thickly,

and another, that the purity of its tint permitted the bearing out of the full strength of its colour in spite of its thin application.

The constituent parts of lapis lazuli are alumina, silica, soda, and sulphur. The native stone has generally some particles of gold embedded in its structure. The Ultramarine pigment is prepared from the lazulite mineral by pounding it in a mortar to a fine powder, and by subjecting it to a prolonged and thorough grinding in water. When most of the azure tint is extracted by washing the well-ground colour, there remains a certain quantity of the grey bed rock or earth which is found with the lapis lazuli, and this residue of the powdered material with some of the extracted blue is ground to form the pigment known as Ultramarine Ash, which is a pale grey blue, and quite as permanent as the genuine Ultramarine, though very weak in colour. The lazulite Ultramarine approaches the nearest in hue of any colour to the spectrum blue, though it inclines rather to violet than to green; it is therefore the best of all blues to use in a mixture with madder lake, in order to obtain a deep and pure purple.

The artificial, or Factitious Ultramarine, known also as Guimet's blue and French ultramarine, is a modern pigment almost as permanent as the genuine blue, and is of the same chemical constitution. It is a little harsher in tint than the native variety and inclines a little more to violet, but sometimes to a cobalt blue, the tint slightly varying with the methods of its manufacture.

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If well made, it can be used as a good substitute for the lazulite blue, but if badly made, or when it contains too much free sulphur, it will blacken white lead; even any variety of ultramarine, whether native or artificial, should not be used with leads or chromates. The best and most permanent variety of artificial ultramarine is that which is the deepest and most intense in hue.

AZZURRO DELLA MAGNA (d'Allemagne), or German blue, but more often called "Azzurro," was much used by the German, Flemish, and Italian artists. It was obtained from a blue copper ore, or carbonate of copper, and probably was similar in composition to the copper blues used by the ancients, and was a perfectly durable and trustworthy pigment in oil or tempera mediums. It was used on walls very much by the Italian frescanti; not on the wet plaster, but in tempera with glue, or an egg-size medium, after the plaster on the walls had thoroughly dried. The blue draperies, and other places in the frescoes where this colour was required, were generally left to be painted finally in tempera. This accounts, as we have mentioned before, for the present bad state of whatever portion of the Italian frescoes, from and including the period of Giotto to Raffaello, that were painted blue, for almost all of the blue portions, that were always painted in tempera, have disappeared, and if there are any exceptions, we may be pretty certain that such portions have been repainted in blue by restorers. It may be interesting, as bearing on this subject, to give the following extracts as quoted by Mrs.

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Merrifield in her book on *Fresco Painting*, 1846. The extracts are from letters written by Benozzo Gozzoli to Pietro de Medici, and preserved in the archives of the family of the Medici. He is speaking of the fresco of the Three Magi, in the Chapel of the Medici, in the Riccardi Palace at Florence: "I should have come to speak to you, but I have begun this morning to put on the blue (*Azzurro*) and I cannot leave it. The heat is great, and the glue spoils directly. I think by next week I shall have completed this piece (*Pontata*). I think you would like to see it before I take down the scaffolding." (Dated, Florence, July 10, 1459.) Again, "I remind you to send to Venice for the blue (*Azzurro*), because by this day week, this side (*Facciata*) will be completed and I want the blue for the other." Sept. 11, 1459) "I had from the Jesuits two ounces of blue (*Azzurro*) of that kind which is three great florins per ounce."

From these extracts we learn that Gozzoli followed the method of the other fresco painters in Italy, in painting his blue draperies, etc., in *secco*, that is, in tempera on the wall, after the plaster had dried, and that he used glue size with his blue colours. The high price of *Azzurro della Magna* has led some modern writers to suppose that this pigment was COBALT blue, but although the native cobalt mineral was known in early times, the method of preparing it as a painter's colour is comparatively modern. It is difficult to say when cobalt, as an artist's pigment, was first used, but it is safe to state that it was not used to any great extent until about the beginning

of the eighteenth century. Its invention must have been the result of tentative experiments in the extraction and preparation of the full-toned rich blue from the native cobalt ore, this being a natural development of the methods of obtaining the pigment known as smalt, or smalto, which is a much older pigment than cobalt blue, and is merely a glass, coloured with an oxide of cobalt. It is quite likely, however, that a still older form of smalt was composed of glass coloured with copper-blue. Both of these varieties of smalt are very weak in colour, but both of them are valuable and permanent in fresco or in enamel painting.

COBALT BLUE is composed of a silicate of cobalt and potassium, or it may be a nitrate, or sulphate of cobalt combined with white silicious sand and potash, or, a compound of cobalt and alumina. Sometimes it contains a little amount of nickel, the presence of which gives it a violet hue.

An old colour called *Zaffre* was a blue inclining to violet, made sometimes from a cobalt ore and ground glass, and also made from copper and glass. This was really a colour that may be described as midway between cobalt blue and smalt. The latter pigment was generally prepared from zaffre. This colour was used by artists in Italy, and also by craftsmen as the colouring substance of blue glass objects. All forms of the pigments derived from cobalt are quite permanent when used in oil, water-colour, fresco, or enamel painting, and may be safely mixed with any colour.

It is conjectured, if not fairly evident, that the blue used in the frescoes and pictures of the Eclectic

or Mannerist School of painters, in the seventeenth century, which include the works of the Carracci, Domenichino, Guido, and Guercino, was a cobalt blue. The blues used by these painters have stood remarkably well in comparison to those used by earlier artists in fresco painting, and although Domenichino painted his blue draperies in tempera on the dry wall, following the method of the older masters, on the other hand, Guercino put his blue to the severer test of painting it on the wet lime plaster, as for example, in his wall and ceiling pictures in the Sampieri Palace at Bologna, and in the garden-house of the former Villa Ludovisi in Rome, where the blue he used has stood remarkably well, having still kept its rich and soft colouring, so that we may be safe in saying that only a cobalt blue or the lazulite ultramarine could have been used in these works. The great cost of the latter colour would, however, prohibit its use on large fresco surfaces.

INDIGO BLUE was known to the Venetians and other Italians under a variety of names, such as *indigo bago*, *indicum de bagadeo*, *indaco baccadeo* and *maccabeo*. The two latter names are given to it by Cennini. It was known to Theophilus, in the twelfth century, as *indigo bagadel* or the indigo of Bagdad, from which place the best varieties were imported into Europe. The colour is extracted from the indigo plant which is cultivated in the East Indies and other countries. Indigo is extremely useful as a dye for fabrics, but as an artist's pigment it is of little or no value, and should not be used, as the tint of this colour

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if required can be obtained by mixtures of other colours which are more permanent. When indigo is mixed with almost any other pigment it is soon destroyed, or completely changed; used alone in water colour washes, it keeps a fairly long time in pure air, but foul air changes it to a brownish hue. In oil colour when mixed with lead white or the chromates it is extremely fugitive. It cannot be used in fresco either, but as regards this, it is singular to find that Cennini recommends the use of indigo in mixture with lime-white for blue draperies in fresco painting, in one chapter of his treatise; in another, he says indigo and lime-white is to be used for the under-painting of blue draperies, but goes on to say that ultramarine blue should be glazed over the indigo preparation colour.

GREENS : **TERRE VERTE**, or **VERDE TERRA** was a favourite green pigment with the old masters. It is a natural grey-green ochre or earth of an unctuous nature, and owes its colour to the green hydrated oxide of iron which it contains. It is a good and permanent glazing colour. It darkens when used in oil, but owing to the silica and iron in its composition it is permanent when used in fresco. It should not be used with lake colours, as it destroys them, but may be mixed with other colours with safety. When calcined it makes a good brown pigment known as verona brown. Terre verte was used very much by the Italians as the first or "dead colouring" in flesh painting, and by gilders as a ground or preparation for gilding.

VERDACCIO was a compound green colour em-

ployed by the Florentine painters, and was called *bazzeo* by the Sienese. It consisted of a mixture of black and yellow ochre, and was used by the artists of both schools in the under-painting of flesh tints, in a semi-transparent manner on a white ground.

VERDIGRIS ("vert de Grèce"), or Verderame, was a bright green, much used as a glazing colour for draperies by the old painters. It is an acetate of copper, artificially made from copper and vinegar. The old form of verdigris dried so well that it had been a common practice to use it as a drier for dark colours and for slow-drying oils and varnishes. Eastlake states that the blackness of the shadows in the darker draperies in pictures of the Spanish Masters of the sixteenth and seventeenth centuries, and in those by Tintoret is quite likely due to the immoderate use of verdigris as a drier, for this pigment was commonly used as such in those days in Spain and in Italy.

Cennini, in his directions for making a "beautiful green ornament" mentions verdigris or verderame, advising that this pigment should be mixed with an oil vehicle and spread over bright tin. In *Smith's Antiquities of Westminster*, 1837, it is related that a certain fragment of very old painted glass, inlaid as a panel in a compartment of a stone bracket that supported a statue in St. Stephen's Chapel, had been painted on the under surface a very beautiful bright green, and this colour was proved to have been verdigris mixed with a varnish and applied to the under

surface of the glass. On the back of this green coating a thin sheet of silver was hermetically fastened; the glass being thus treated was laid upon a cement that fastened it to the stone wall, and thus prevented any damp from coming through to the green colour. Although this green had been exposed to the daylight for hundreds of years, it was not affected by it, for the colour had still remained fresh and vivid, and the pigment being so well locked up in its varnish vehicle, and protected by the glass in front and the silver leaf behind, no air could get at it. This affords an interesting proof that even some doubtful and fugitive pigments if used alone, and locked up in any medium that would secure them from the effects of the atmosphere, may remain quite unchanged for almost any length of time.

It is well known that verdigris when mixed with, or used over or under, any colour but orpiment, almost destroys them, and must be used alone in a varnish. Artists, however, should avoid the use of this very undesirable pigment.

MALACHITE, also known as Mountain Green, is a hydrated carbonate of copper. It is found native, and also prepared artificially. The native malachite is a valuable green stone streaked with light veins. The green malachite pigment was known to the Egyptians. Like most copper greens it is affected by sulphur gases, but fairly permanent when used alone and protected from impure air, as in a varnish. It does not appear to have come under much notice, but this may be due, as some affirm, to the fact that verdigris has

been confused with malachite by most early authorities on the subject of artists' pigments.

VERDE AZZURRO.—Cennini mentions this green, but does not describe it any further than by stating that it was made from the blue pigment *azzurro della magna*, so it may possibly have owed its green colour to an excess of the copper and zinc oxides with the blue from which it was derived.

Other greens were used by the old painters, but they were almost invariably compounds of certain blues and yellows.

BROWNS.—In old documents the term "brown" has been applied to numerous colours embracing red ochres, dark reds, and even yellowish dark greens; also to mixtures of red and black, blue and dull reds, etc. Purple-brown, formerly Spanish brown, is a modern name given to a dark variety of Indian red.

The most important browns are the umber earths, Vandyck brown, or Cassel earth, and a darker form of the latter known as Cologne earth. These browns were not known before the date of the sixteenth century and some of them later than this. All of them, including the Raw and Burnt umbers, are perfectly sound and reliable pigments. The umbers are good drying pigments, as they contain manganese, but the Vandyck browns dry badly owing to the bitumen in their composition.

RUBENS brown is a native ochreous earth, and is a lighter and warmer variety of Vandyck brown. It was a pigment very much used by Rubens and Teniers.

ASPHALTUM, or bitumen, is a brownish-black

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pitchy gum. It was known to the ancients, and was used as a glazing colour by the Flemish and Italian artists. The rich effect it gave to certain colours when first applied over them as a glaze was an inducement to artists to use it, but wherever it has been so employed it has proved disastrous to paintings, for it not only has a strong tendency to decompose in time into a sooty blackness, but as a rule it never dries thoroughly except on the surface, and the action of the surface-drying, when the underneath is still in a moist state, causes deep cracks in the work. Many old paintings show these disastrous effects caused by the use of asphaltum, and notably in some of the later pictures by Sir Joshua Reynolds, where he used this pigment in a lavish manner.

BLACK.—Native black earths, or black chalks, such as *Terra Nera di Roma* or *di Piedmonte* and other kinds of black chalk were used by the old painters in fresco work. Carbonaceous blacks prepared from calcined bones, ivory, and charcoal are all useful and permanent in oil or water colours, but they should not be, as a rule, used in fresco. There is one exception to this, however, that is ivory black, which is the most perfect of all carbonaceous blacks. Generally speaking it may be said that the ordinary black pigments in common use remain inert, and have little or no action on any pigments they may be mixed with.

SOME MODERN PIGMENTS.

Artists of to-day have the advantage of a more extended palette than the old painters had. Some,

however, may say that this is a doubtful advantage, but it cannot be denied that in addition to our still possessing the best of the old colours, there are quite a number of even more permanent ones, notably of green and yellow pigments, which chemists have added to the modern artist's colour box. Also, the more perfect grinding of them by modern machinery methods render them finer in texture and even superior in some ways to the older pigments. A few of the old colours mentioned by ancient and mediæval writers are now unknown to us, or at least cannot be recognized under the names that were formerly given to them, as half-a-dozen terms of different etymology were sometimes applied to the same pigment, which has tended to obscure or confuse their identity.

MODERN YELLOW PIGMENTS.—The most important of the modern yellow pigments is Cadmium, which is prepared in two or three shades, from a pale yellow to an orange or a red colour, and is perhaps the most brilliant yellow known. The cadmium yellows are sulphides of cadmium, and if well prepared are very tenacious in the keeping of their own sulphide, but if badly made they will likely contain some free sulphur, and if used with flake white or any colour which has lead in its composition, such as chrome yellow, the free sulphur of the cadmium uniting with the lead of the other pigment will form a black sulphide of lead, which will ultimately cause the yellow mixture to become greenish, as black and any bright yellow when mixed will make a green in a visual sense, though not in a chemical one. The

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best prepared form of cadmium yellow, and particularly those of the medium and darker varieties, may be safely used with flake white, and may be used in fresco and other mediums, but the paler cadmium is more fugitive, and not reliable. Cadmium yellow destroys all copper greens by turning them to a coppery brown, and more particularly the brightest kinds, such as emerald green. Doubtful forms of cadmium can be used with safety in mixture with zinc, or Chinese, white.

LEMON YELLOW is known also as Baryta yellow, and Yellow Ultramarine. It is a chromate of barium, or may be a chromate of strontium, and may be considered as a permanent colour under most conditions. It is not safe, however, to use it in mixtures with colours which are obtained from the oxides of iron, such as the ochres and siennas, as it dulls them, and ultimately such mixtures disintegrate and fall off the surface of the fresco, water colour, or wax paintings. Lemon yellow, however, can be safely used in mixture with lead or any other pigments than the oxides of iron.

Permanent yellow is a mixture of lemon yellow and zinc white, or, it may be made from a chromate of zinc, and zinc white. It is also a permanent pigment, though rather pale to be of much use as a yellow. Primrose yellow is another of these classes of pigments. It is a pale chromate of zinc, and is also known under the name of zinc yellow. These pale yellows are well adapted for use in painting the lighter tones of green draperies or

of other darker greens such as foliage, etc., when such greens as the oxides of chromium are used, as all these pigments, used either alone or in mixtures, are perfectly permanent.

CHROME YELLOWS. — These yellows are all chromates of lead with the addition of sulphates of lead and lime. They are dense and brilliant pigments, and are made in different shades, such as pale, or "lemon chrome," deep chrome, and orange chrome. The orange variety is produced by boiling the lemon chrome with caustic lime, and as the temperature rises the colour deepens to orange or even to red. Though chrome yellows are useful in common painting work they should not be used as artists' pigments, as they are all subject to the same injurious action of sulphuretted hydrogen gas, contained in foul air, like all lead pigments. They also tend to become green, by the process of reduction, when mixed with organic pigments, or with cadmium yellows. Orange chrome is more permanent than the yellower varieties.

It may be worthy of mention that chrome yellow was a favourite pigment with Holman Hunt, who declared that it had kept its colour in his pictures for many years. He used it in sunset skies, and notably in his picture of the "Scapegoat."

INDIAN YELLOW is a uriophosphate of lime, and is a transparent dark yellow of not much body. It is claimed by some to be permanent in fresco, as the lime of the plaster does not affect it. This may be true if it is used so alone, but if it is used in any medium, or mixed with any pigments that

contain or impart oxygen, its yellow colour will be darkened beyond recognition.

GREENS.—The most permanent modern green pigments are those known as the *Oxide of Chromium*, a dense and opaque colour of great body, and the *Emerald*, or *Transparent Oxide of Chromium*. The former is a combination of oxygen and chromium, and a variety of this kind is known as French veronese green. The transparent variety is the hydrated oxide; a deep bluish green, rich in colour but not so brilliant as the pigment commonly known as Emerald green. This hydrated oxide is also known as viridian. Both of these important chrome greens are perfectly reliable in any medium, and do not injure any other colours when mixed with them. The only exception to this is, that the hydrated oxide cannot be used in enamel painting on account of its having some water in its composition. Another form of this pigment is known as “Vert de Guignet,” which is said to have some borax in its composition.

There are also other greens which go under the name of chrome greens, but these are generally composed of mixtures of chromate of lead and Prussian blue, and are not at all reliable as artists' colours.

EMERALD GREEN, the brightest of all greens, Brunswick green, and Scheeles green are all similar in composition, and are prepared from copper, acetic acid, and arsenic. They are all injurious to other colours in mixtures, are altered in colour by the action of the air, and are highly

poisonous. Emerald green is the most reliable of these copper greens, when used by itself, or in mixture with zinc white, and is fairly permanent when used in a varnish medium.

BLUES.—*Prussian blue* is a comparatively modern pigment, being discovered in the eighteenth century. It is a dark and intense blue of great body, or staining powers, and consists of a chemical composition, known as a “ferro-cyanide of iron.” It is a cyanogen blue, one of the compounds of iron and cyanogen. It is made by adding a solution of the ferro-cyanide of potassium, the yellow prussiate of potash, to a solution of a persalt or per-oxide of iron such as the sulphate of iron—green copperas—or to a nitrate or a muriate of iron. Other blues, similar in composition, are known as Paris blue, Chinese blue, Antwerp blue, etc., and are all ferro-cyanides of iron. All these pigments dry well, and when used alone, or in mixtures with zinc white, or with sienna earths they are fairly permanent, but lime and all alkalis destroy ferro-cyanide blues. They should not be used with linseed oil, or they soon become green, but in a varnish and turpentine medium they keep their colour fairly well.

CERULEAN blue is an artificial colour resembling a mixture of cobalt blue, zinc white, and a little yellow, which gives it the slight tinge of green. The commoner kind of cerulean is a mixture of zinc white, ultramarine, and Naples yellow, but the best modern variety is a stannate of cobalt. The ancient Egyptian blue resembling cerulean, was obtained from a carbonate of copper. The

modern pigment has a dense and opaque body, it is very permanent, and can be used in fresco.

New blue and Permanent blue are simply modern varieties of artificial ultramarine, darker and lighter, respectively, to the latter, and both inclining towards the hue of cobalt.

REDS.—With the exception of the reds obtained from alizarin, the modern product of coal tar, there are hardly any reds, worthy of the artist's notice to-day, that were not known to the old painters. The alizarin reds are modern imitations of the crimson and madder lakes. The colouring matter of alizarin is identical with the red colour product of the madder plant, the *Rubia tinctorum*. It is therefore much more permanent than the red which is obtained from the cochineal insects, used in the preparation of crimson lake. Alizarin crimson is not quite so pure in colour as madder lake, but it is quite as permanent as the latter, and is subject to the same conditions as madder lakes when used as an artist's pigment.

BROWNS.—Brown madder is a composite colour made as a mixture of madder lake and burnt sienna, or an iron oxide, or, it may be a mixture madder lake and black. It is almost permanent, but in time generally loses some of its brilliancy. Sepia is a transparent brown derived from the cuttlefish, but more often made from walnuts.

Prussian brown is a good and permanent colour made by calcining Prussian blue. It is a very transparent iron brown of a yellowish hue. Another form of Prussian brown is prepared from a solution of blue copperas added to a solution of

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yellow prussiate of potash. This is a copper brown.

We have now noticed and described the more important and useful pigments that are manufactured at the present day, omitting many others that are not worthy of the artist's attention, on account of their doubtful qualities or unreliability, and others which are merely mixtures of certain colours, as the case is with some greens, oranges, purples, browns, and greys. As regards some pigments that are not noticed in the above description, but are in common use to-day, it may be pointed out that they have been already described in the former chapter which deals with the colours used by the old painters.

CHAPTER XII
VARNISHES AND OLEO-RESINOUS MEDIA

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VARNISHES AND OLEO-RESINOUS MEDIA

ONE of the oldest kinds of varnish was the oleo-resinous vehicle known under the name of "Vernice Liquida," and was probably of the same nature as that used on the oldest, as well as the more modern, tempera pictures as a finishing coating to protect the tempera colours. This varnish is mentioned in most of the old manuscripts that treat of the technical processes of painting.

The term "vernice liquida" frequently occurs in the MSS. of Alcherius (1382-1411), of St. Audemar, often in Cennini's treatise, in the Venetian MS., in the Notes of Le Begue, and Vasari also mentions this varnish in his account of the life of the painter Alesso Baldovinetti.

This old liquid varnish simply meant "varnish," as the latter term in the modern sense of the word implies any kind of an oleo-resinous composition in a liquid state that is used in painting and that dries with a lustrous appearance, but formerly the old word "vernice," or "vernix," was the name given to one of the ingredients of the composition, namely, the gum or resin in its dry state. The liquid of the vernice liquida was either a drying or "fixed" oil, such as linseed or walnut

oil, or in rarer instances an essential oil, such as the oil of spike, or spirits of turpentine, and in some cases it was a mixture of a drying and an essential oil. In many early documents that give recipes for the making of vernice liquida the word "vernix" was often used to designate the dry sandarac resin, one of its ingredients. Sandarac was also a name given by the Greeks to a certain red pigment, possibly red orpiment, from its resemblance to the red colour of sandarac resin which the latter acquires with age. The word sandarac is derived from the Persian *sandarūs*, which means a red colour. Amber resin, a more valuable substance, was also employed in the making of varnish, and in some old documents it has been confounded with sandarac.

The sandarac resin is the product of the *Thuja articulata*, the African *Arbor vitæ*, a kind of dwarf pine, resembling the juniper tree. It is a native of Morocco, and is also found in some other countries of the East. The fresh sandarac gum or resin is yellow in colour, but gradually grows red with age, and also darkens to a reddish colour when heated with oil in the process of varnish making. We have mentioned that some early authorities speak of sandarac resin and dry vernix as one and the same substance; they also in some instances have mistaken the *Thuja articulata* for the juniper tree, as will be seen from the following extracts quoted by Eastlake from writings on medicinal subjects of the sixteenth and seventeenth centuries, for example: "The juice which flows from the juniper is called vernix." "From dry

vernix and linseed oil, liquid vernix is made." "The juniper produces a resin similar to mastic, called sandarac. This, when fresh, is light in colour and transparent, but as it acquires age it becomes red." "With this resin and linseed oil is prepared the liquid vernix, which is used for giving lustre to (tempera) pictures, and for varnishing iron." Again: "It is prepared from the sandarac of the Arabs; this is called dry vernix. From this and linseed oil is made the dark (red) liquid varnish so well adapted for giving lustre to pictures and statues," etc. Also: "Vernisium, the same as vernix, otherwise called sandarac, or juniper resin, and thus dry vernix, also the fluid composition prepared from the resin, then, or formerly, called liquid varnish." The latter extract is from a book on medicine by B. Costello, Geneva, 1746.

The general and modern meaning of the word "vernice" or varnish, prevailed from about the beginning of the seventeenth century, when the term "liquid varnish" became obsolete, and sandarac was no longer a synonym for (dry) vernix.

The old formulæ for making the common kind of vernice liquida of a moderate consistency was, one part of sandarac resin to three parts of linseed oil. The oil was heated to a boiling point, and the resin was added in small quantities at a time to the boiling oil and kept well stirred until the whole of the resin had been finally dissolved and thoroughly incorporated in the mixture, which was then allowed to cool. A superior sort of this

varnish was known as "*vernice liquida gentile*," and was made by dissolving one part by weight of yellow amber in three parts of boiling linseed oil. This would make a stronger and more elastic varnish than the commoner kind made from sandarac. According to Tacitus and Pliny the old German name for amber was "*glassum*" (*glas*), signifying perhaps its clear and transparent nature. The terms "*glas*" and "*glassa*" were often applied to amber, and in some old documents to sandarac as well. The term "*verenice*" (*vernix*) was used by the Greeks to signify amber, and this word was often used in later times, though incorrectly, as a designation for sandarac.

Vernice liquida prepared from sandarac was usually reddish and dark in colour, and as such was preferred by the Byzantine painters, whose pictures always show that a dark varnish must have been applied over the tempera colours. The early Italian painters purposely executed their work in a light scheme of colouring, relying on the dark varnish to give their pictures the necessary rich and darkened tones. In these cases the old painters used their dark varnish as a lacquer, and some went so far as to tint the varnish with transparent pigments in order to make a lacquer to glaze over their pictures, to give the colours more depth, and so enhance their brilliancy and richness. Red sandarac varnish was also used to counteract the greenish tones of the underpainting of the flesh tints by the early Italian painters.

On the other hand, occasions arose when paint-

ings, or certain parts of them, should be kept light and brilliant, and for such parts a white, or some pale variety of varnish, sometimes mentioned as "*chiara*," in old documents, was sought for. This was provided by the white varnish made from concrete turpentine, and sometimes from mastic, or even from a mixture of one or both with sandarac and linseed oil.

Turpentine resin in the concrete state was called "*white resin*," or "*fir resin*," and sometimes "*glorie*," or "*gloriat*," from the gloss it imparted to varnish. The Greek names for it were "*pece*" and "*pegola*." In some documents of the sixteenth century concrete turpentine is often mentioned under the name of "*pece Greca*." This substance is obtained from many trees of the Coniferous order, such as pine, spruce, and fir trees. Common resin, or colophony, is the solid residue obtained from concrete turpentine after the oil is distilled from it.

It was found that turpentine resin when mixed with the other ingredients of varnish increased its gloss or brilliance, and for this reason the varnishes which contained it were in common use for the varnishing of implements and furniture, as well as for pictures.

Varnishes composed of resins and "*fixed*," drying oils, dry, like the oils they contain, by what chemists call "*oxidation*," that is, in the process of drying they take up oxygen from the atmosphere which unites with the oil and forms a sort of waterproof pellicle, or skin, on the surface, not unlike india-rubber in texture; while on the

other hand, varnishes made from resins or gums and essential oils or spirits, such as oil of turpentine, oil of spike, naphtha, alcohol, etc., dry, like the oils of their composition, by "evaporation."

When varnishes that dry by oxidation are mixed with badly drying pigments, or when spread over the latter before they are thoroughly dry, the surface will likely become wrinkled or cracked, for in such cases the upper surface will oxidize, or dry, much sooner than the underlying pigment, and in course of the drying of the colour underneath it will cause wrinkles, or tear the upper surface sooner or later and produce cracks.

The ordinary mastic varnish in use at the present day is an essential-oil varnish composed of gum mastic and oil of turpentine. It is the best of all spirit varnishes, as it does not darken colours, and is not liable to cause wrinkling or cracking of picture surfaces. The fixed-drying oil varnishes used in painting embrace copal, amber, kauri, sandarac varnishes, etc., and their drying power is hastened, not only by the boiling of the oil in the process of manufacture, but by the addition of one or other of such substances as sugar of lead, acetate of lead, litharge, manganese, and white copperas.

When the Van Eycks sought for a varnish to apply to their pictures, one that would dry in the shade, they evidently, after many experiments, discovered what they sought for, namely, an oil varnish to which they probably added some of the above-named drying ingredients. Such a varnish would dry almost as well out of the sun

as in it because of its drying by oxidation. We may infer from this that the varnish formerly used by the Van Eycks, and other painters before their time, was either an essential-oil varnish, or one very like such a varnish in composition, that only dried in the sun, or by heat—that is, that its drying, if not due altogether to evaporation, was at least hastened by heat of some kind. It appears, however, that having found an oleo-resinous varnish to suit their purpose the Van Eycks used this as a vehicle for their colours, and apparently ground their pigments in this vehicle, instead of water, as formerly, and found them to appear more lustrous and richer by doing so. They also found that their pictures when painted with colours that had been ground in the oleo-resinous vehicle, did not require a final varnishing, like that which had been given to paintings which had been executed in the older tempera methods, as the colours in the new method dried with a gloss, and were protected enough, without the addition of a coat of varnish.

It may be suggested here that the oleo-resinous mediums used by the Van Eycks and the Flemish painters who immediately followed them consisted of mixtures composed of the concrete turpentine resin, damar, or mastic gums, dissolved by hot turpentine oil, to which a small quantity of linseed or walnut oil was added in the making to counteract the otherwise brittle quality, and to give toughness or elasticity to the varnish. The clear and brilliant state of the colours in the pictures by the Van Eycks and other early Flemish painters would

suggest the use of a medium made from balsams or other white, or very light coloured resins, also, the *pece greca*, or fir-resin, would protect the colours from damp or moisture more effectually than even amber or copal, and so preserve their lustre. If the latter resins or gums were used as ingredients of some of the early Flemish varnishes, such varnishes were only used on the darker coloured portions of their pictures. It has been suggested that the Van Eycks ground their colour in walnut or linseed oil, and used the varnish mixture of their invention as a painting vehicle or diluent, but there is no positive evidence of this.

We may be pretty certain that the new oleo-resinous vehicle discovered by the Van Eycks was a freely working medium, and not so sticky or glutinous as our modern oil varnishes, or if it was so, when freshly made, it must have been diluted with some thin diluent like oil of turpentine, oil of spike, naphtha, or perhaps with a thin and slow drying fixed oil like poppy seed oil or walnut oil. In any case it must have been a thinner and a more slow-drying vehicle than any of the ordinary oil varnishes, otherwise the Van Eycks could not have been able to execute their paintings with such elaborate care and finish which is so characteristic of their work. We have no evidence that the Flemish painters applied a coating of this oleo-resinous varnish to their pictures after they were finished; on the contrary, if they had done so their paintings would not have remained in the comparatively light and fresh state as they

now appear. It is much more likely that if they varnished them at all, it was with an essential-oil varnish or some "white" varnish, to which a little linseed or nut oil was added to give it elasticity some time after the work was finished.

Oil varnishes should be used very sparingly, and in the same way as the Van Eycks used them, namely, as one of the ingredients of the oil painting vehicle, or they may be used over a painted surface, if the picture is to be finished by painting again over the oil varnish, but such a varnish should not be applied as a final coating, as all oil varnishes have a strong tendency to get brown and darken in time. This darkening is not only due to the oil of their composition becoming yellower or greener, but it is also brought about by the resins or gums themselves which acquire a dark brown with age.

Oil-painted pictures should therefore be varnished with a clear white spirit or essential-oil varnish, to which a little quantity of linseed oil has been added in the making, but not until a period of from one to two years after the work is finished, when the colours become thoroughly hard and dry, but tempera paintings may be varnished, also with a similar clear varnish, about two or three weeks after the painting is completed.

Mastic varnish is the most reliable of all kinds of spirit varnishes, but it has only a lifetime of about ten years, therefore oil paintings which are always exposed to the air should be carefully cleaned and revarnished every ten years.

The gum mastic is obtained from the mastich,

or lentisk tree, *Pistacia lentiscus*, a native tree of Arabia, Persia, and other Eastern countries. It is a clear pale yellow kind of gum or resin, and has good drying qualities. Mastic oil varnish was in common use in the north of Germany and Flanders, from the beginning of the fourteenth century, and perhaps earlier. It was likely the "white varnish" that was introduced into England in 1353, when some quantities of it were supplied by the painter Loyn, of Bruges, in that year, for the use of the painters of St. Stephen's Chapel, Westminster. This "white" varnish was provided at 9*d.* the lb., and the red sandarac at 4*d.* the lb.; the difference in the price would lead us to infer that the white varnish supplied was mastic. In other English records white varnish is mentioned as high as 1*s.* the lb., while elsewhere white varnish is mentioned as low as 4½*d.* the lb. This cheaper price would lead one to suppose that the commoner white variety, made from fir resin, or concrete turpentine and linseed oil, was supplied, as these two white varnishes were not differentiated in the old records. They were generally classed under the same heading, simply as "white varnish," whether made from fir-resin or mastic, as, "vernisiū alba," in contradistinction to "vernisiū rubrum," the red sandarac varnish.

Mastic oil varnish was made in the fourteenth and fifteenth centuries much in the same way as sandarac, and "gloriat" (turpentine) varnishes, namely, by boiling three pounds of linseed, nut, or hempseed oils, and while the oil was boiling adding and stirring in little by little the powdered

resin. Sometimes white copperas or lead preparations were added to the oil before the resins were put in, if a good drying varnish was required. In the seventeenth century and later, the Flemish painters added purified turpentine to the mastic oil varnish, and recommended a varnish of this description, not only for mixing with the colours, but also for the varnishing of the finished oil painting.

Eastlake gives an extract from an unsigned modern manuscript, which purports to be descriptive of Vandyck's method of making mastic varnish, but he says it must rest on its own merits. According to this manuscript Vandyck's receipt was as follows : " Take one pound of gum mastic, carefully picked ; powder it in an earthen vessel with two pounds of spirit of turpentine. Set this in a sand heat that is less than will make the spirit boil ; let it remain (shaking it well continually) till the gum is dissolved. Take it from the fire and let it stand until the contents are cold. The varnish is to be poured out and separated from any little foulness that it may contain. Put in bottles exposed to the heat of the sun. This will make it clear and improve the colours in proportion to the time it is kept. Take one pound of this varnish and half-a-pint of drying oil ; shake them well together ; put them in a bottle to simmer on the fire for a quarter of an hour, when the mixture will be complete. But if it should curdle as it cooks, it must be set on the fire again, and simmered until, when cooling, it does not curdle, but appears like a white jelly."

By the same writer there is a description of Vandyck's method of making a drying oil: "Take an ounce and a half, or two ounces is better, of white lead, and a pint of nut (walnut) oil; set the oil upon the fire, in a large earthen vessel; put in the lead by degrees, as the oil simmers very slowly over the fire until the whole is dissolved (diffused)." The oil was afterwards clarified by straining, and used fresh. Vandyck, the writer says, "never kept it by him for more than a month, for after that time it began to lose its good qualities; it is believed that Cornelius Jansen, as well as Vandyck, used this oil."

Essential-oil varnishes were used by the Italian and Flemish painters of the fifteenth and later centuries that were made from fir turpentine resins, dissolved by heat and adding an equal quantity of either petroleum spirit (naphtha) or spike oil, while the resin was in a liquefied state. This made a thin and glossy varnish, and was used as a protective covering for the colours in oil painting, to make them "bear out" without causing any of the disagreeable after darkening effects, which are always caused by the employment of an oil varnish when coated over the finished picture. Another advantage claimed for this use of an essential-oil varnish, was, that it permitted a repainting over it when dry, without any danger of cracking of the surface. Sometimes the concrete venice turpentine, the balsam product of the larch, was used in the making of this varnish, instead of the silver-fir resin. The latter, however, is more clear and colourless than the former,

and is better than the darker Venetian turpentine, unless this is used in a highly purified state.

Vandyck made and used this clear white varnish, according to the authority of De Mayerne, who was a friend of Vandyck, but in the later period of his practice, he evidently made more use of a mastic oil varnish, and more particularly so for the final varnishing of his pictures.

CHAPTER XIII
OIL PAINTING

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THE invention of oil painting as applied to pictures has been credited to the brothers Hubert and John Van Eyck, the Flemish painters who lived in the fifteenth century, but the use of drying oils, obtained from linseed, hempseed, poppy seed, and walnuts, as media for colours, instead of the older tempera media of egg size, glue or parchment size, was known long before the Van Eycks' time, though oil as a medium for the colours was not in common use until after the middle of the fifteenth century.

The particular method of painting discovered and practised by the Van Eycks was not oil painting, in the modern sense of the term, but was really a form of *varnish painting*, where an oleo-resinous vehicle was employed as the medium in which the dry pigments were ground. They had been experimenting in order to obtain a good drying varnish to protect their finished tempera pictures, and having found what they desired for this purpose, they simply used this new medium, instead of the water-size vehicles, to grind their colours in.

Linseed oil as a medium for colours was indeed

used by some Florentine artists of the fourteenth century for certain portions of their pictures, as we are informed by Cennini and other writers. This Italian author also speaks of oil painting as a method "much practised by the Germans," from which we may infer that this must have been the case for a considerable time before 1437, the date of Cennini's writing. Some have argued from the mention of the Germans in this connection, that the practice of painting in oil was introduced from Germany or from the Netherlands into Italy. We may be quite safe in saying, however, that the perfected system of painting pictures in an oleo-resinous vehicle was due to the experiments and efforts of the Van Eycks, and that the new method was developed by these artists with most satisfactory results.

The Florentines, during the fifteenth century, made many efforts to substitute oil, as a new medium for the old egg-tempera kind. We know that varnishes and drying oils were tentatively experimented with in Italy as vehicles for painting about this time, and that some pictures, both on panels and on walls, were painted partly in oil or varnish mediums and partly in tempera, and in fresco.

At first great difficulties were experienced in using the sticky and viscid oils and varnishes, and often for this reason the draperies and accessories only were at first painted in oil colour, as being the least difficult parts of the picture to paint, but the flesh painting, presenting a more difficult task in the manipulation of the colours, especially to

artists who had been more accustomed to the use of tempera, was for a long time still executed in the latter method.

Among the leaders in the experimental methods of oil painting in Florence were Domenico Veneziano, who was painting there from 1439 to the year of his death, 1461; and his celebrated pupil Piero della Francesca (1415 ?-1492). This great Umbro-Florentine artist made some improvements in the new methods of painting, which was also practised by Pesellino (1422-1457), and Alesso Baldovinetti (1427-1499).

The contemporary painters, the Pollaiuoli, still further improved the art of oil-colour in Italy, while Verrocchio (1432-1488) and his pupils or assistants, Lorenzo di Credi (1459-1537) and Leonardo da Vinci (1452-1519), especially the latter great artist, carried the art of oil painting to the highest degrees of technical perfection.

Vasari, in his life of the Sicilian painter, Antonella da Messina, relates that Giovanni da Bruggia (John Van Eyck) painted a certain picture in the old tempera method, and after varnishing it, he set it in the sun to dry, in accordance with the usual custom. The author goes on to say: "But whether the heat was too violent, or that the wood was badly joined, or insufficiently seasoned, the picture gave way at the joinings, opening in a very deplorable manner. Thereupon Giovanni, perceiving the mischief done to his work by the heat of the sun, determined to proceed in such a manner that the same thing should never again injure his work in like manner. And as he

was no less embarrassed by his varnishes than by the processes of tempera painting he turned his thoughts to the discovery of some sort of varnish that would dry in the shade, to the end that he need not expose his pictures in the sun. Accordingly, after having made many experiments on substances, pure and mixed, he finally discovered that linseed oil and oil of nuts dried more readily than others of all he had tried. Having boiled therefore these oils with *other mixtures* he thus obtained the varnish which he, or rather all the painters in the world desired. He made experiments with many other substances, but finally decided that mixing (grinding) the colours with these oils (varnishes) gave a degree of firmness to the work which not only secured it against all injury from water when once dried, but also imparted so much life to the colours, that they exhibited a sufficient lustre in themselves without the aid of varnish, and what appeared to him more extraordinary than all else besides was, that the colours thus treated were more easily united and blent than when in tempera."

This statement of Vasari's as to John Van Eyck's reputed invention of oil painting, has been considerably questioned, and even denied by many writers, but is upheld by Lanzi and others. Tambroni, for example, in his preface to Cennini's *Trattato della Pictura* goes so far as to declare that the account given by Vasari of the invention of oil painting and Van Eyck's connection with it is "one of those romances which are incapable of supporting the anvil of the critic."

In any case if the discovery of the "new method" is to be credited to either of the Van Eycks, the claims of Hubert, the supposed elder brother, as the artist who first adopted the new system of painting, ought to be, as we think they are now, generally acknowledged. There is, however, no definite or trustworthy evidence existing to prove that the Van Eycks invented oil painting, as it rests on hearsay literary gossip, no more than there is any existing evidence as to which of the brothers was the elder, as no known records can be found that give the years of their births. But it has been pointed out before, that the reputed invention was not so much that of oil painting, but varnish painting, as oil painting was practised at a much earlier date than 1410, the year of the reputed birth of oil painting.

The first mention of linseed oil was made by Aetius, a Greek medical writer and physician of the sixth century, though other drying oils, such as nut and poppy-seed oils, have been mentioned by Pliny and Dioscorides, but in all the above references these oils were not mentioned as painting mediums. Aetius states that linseed oil was prepared in the same way as the *oleo cicinum* (castor oil), and that it had superseded the latter in its medicinal uses. Afterwards he mentions walnut oil, as follows: "Walnut oil is prepared like that of almonds, either by pounding or pressing the nuts, or by throwing them, after they have been bruised, into boiling water. The medicinal uses are the same: but it has a use besides these, being employed by gilders or encaustic painters,

for it dries and preserves gilding and encaustic paintings for a long time." According to this passage, nut oil was therefore used as a preserving varnish for gilt ornaments, but not as a size or mordant underneath the gold leaf, and it also proves that it was used in painting, as a drying oil, in the sixth century and perhaps earlier, though the drying quality of linseed oil does not appear to have been known, nor is there any mention of its having been used in the arts.

The siccative qualities of linseed oil appear to have been known in the eighth century, about the time of Charlemagne, and from that period on to the twelfth century, when it was in common use, and afterwards it superseded walnut oil for the making of oleo-resinous varnishes, of which there are many receipts preserved in old documents.

In the two following centuries linseed oil appears to have been extensively employed as a painting vehicle in England—at Westminster and Ely, as we shall see a little later on.

The earliest writers who mention the mixture of oil with colours for painting (chiefly decorative) are Eraclius and Theophilus; also the French ecclesiastic, Peter de St. Audemar, whose treatise on the arts is almost a contemporary work with that of the monk Theophilus. Two copies of the treatise by Eraclius, *De Coloribus et Artibus Romanorum*, are in existence, one of which is in the British Museum Library and the other in the Paris Library. A most complete copy of the work by the monk Theophilus, entitled *Diversarum*

Artum Schedula, is in the British Museum. These treatises contain several passages which give various receipts and directions for the extraction of drying oils, making of varnishes, and for the immixture of colours with linseed and other drying oils. Both of the MSS. were compiled about the close of the twelfth century. It is supposed that these two writers—Eraclius and Theophilus—were natives of some country north of the Alps.

The third MS., by Peter de St. Audemar, is now in the Paris Library, and is a work on medicine and the arts of painting, etc. This author describes various pigments and the mediums in which they may be used when applied as colours for illuminating on parchment, for painting on wood panels, and on walls. For example, he states that white (lead) should be mixed with wine, or ground in it, for painting on parchment, but with oil for painting on wood and on walls. Green (verdigris), in like manner for wood, and for walls with wine, or oil. Blue, to be used on walls with egg and water size, but on wood with oil. Minium (red lead), for walls is to be ground in gum water, but not with egg size, except when used on parchment; if used on wood it should be mixed with oil. Black, to be used on walls with water and egg, or on wood with oil. These directions are similar to many that are mentioned in the treatise by Theophilus, and more especially to those which include oil as a medium.

Lorenzo Ghiberti (1276–1336), when speaking of Giotto's many attainments, says that he also

occasionally painted in oil colours—" *lavorò a olio.*"

Walpole in his *Anecdotes of Painting* quotes from a document of Henry III, dated the 23rd year of his reign (1239), a year before Cimabue was born, that testifies to the practice of oil painting in England at that time. This mandate of Henry III is worded as follows:—"The King to his treasurer and chamberlain. Pay from our treasury to Odo, the goldsmith, and Edward his son, one hundred and seventeen shillings and tenpence for oil, varnish, and colours, bought by them, and for pictures made in the Queen's Chamber, at Westminster; to the octaves of the Holy Trinity (May 25th), in the 23rd year of our reign, to the feast of St. Barnabas (June 11th), in the same year, namely, for fifteen days." Similar mention of oil as a painting vehicle appears in the numerous account rolls belonging to the reign of Edward I (1274-1293) and in others dated 1307, the first of Edward II. Also in the records of Ely Cathedral of the dates 1325 to 1351, and in a number of account documents belonging to the reign of Edward III, which relate to the decoration of St. Stephen's Chapel, from 1352 to 1358. Partial translations of the latter accounts appear in *Smith's Antiquities of Westminster* (London 1837).

The following extracts from Eastlake's *Materials, etc.*, throw further light on the use of oil as a painting medium in the thirteenth and fourteenth centuries in England:—"In the period from 1274 to 1277 (second and fifth of Edward I), an account apparently relating to the Painted Chamber

(Westminster), contains these items:—‘To Reymund, for seventeen lbs. of white lead II.s. X.d. To the same for sixteen gallons (?) of oil, XVI.s. To the same for twenty-four lbs. of varnish XII.s. . . . To Hugo le Vespunt, for eighteen gallons of oil XXI.s.’ Again; ‘to Reymund for a hundred (leaves) of gold III.s. To the same for twenty-two lbs. of varnish, XI.s. I.d.’ Elsewhere; ‘To Robert King for one cartload of charcoal for drying the paint in the King’s Chamber.’” The last entry appears to relate to the drying of the surfaces painted in oils, but the precaution may also have been necessary before varnishing tempera.

In the year 1289 (seventeenth of Edward I), the following materials were enumerated in an account relating to the repairs in the Painted Chamber:—“White lead, varnish, green, oil, red lead, tin-foil, size, gold leaf, silver leaf, red ochre, vermilion, indigo, azure, earthen vessels, cloth, etc.”

In 1292, oil and varnish are twice mentioned in a similar account. In 1307, in consequence of a fire, which occurred in 1298, repairs were again undertaken, and similar materials were used for the work of restoration.

The records of Ely are more conclusive as to the immixture of oil with colours, and, as the materials are nearly the same as in the above mentioned accounts it may be inferred that oil painting was practised at Westminster as well as at Ely. Among the items of an account of the year 1325 three gallons and a half of oil are mentioned “for

painting the figures on the columns." In English records the term "ymagines" is used indiscriminately for painted figures on any surface, and for statues, but the latter in some foreign documents are distinguished by the term "ymagines rotunde." The Ely figures on the columns would be painted ones, and the method of their execution would be in oil colours. In 1336, in a similar account, oil is mentioned as being supplied in great abundance, forty-eight flagons altogether, and this may explain its absence in other entries where colours and other materials are mentioned without oil. It should be remembered that when in some documents the word "varnish" appears alone it may be generally understood that oil was included, even if it was not mentioned in the list of materials, for without which the "vernix" or "sandarac" would be of no use, as the latter terms in those days usually meant the dry resin or gum only. In the last mentioned account columns were to be painted; a usual proceeding in mediæval times.

In 1339 and 1341 oil again appears; in an account of the former date it is mentioned "for tempering the colours."

In 1351 oil is mentioned "for making the painting in the Chapel." In all these documents where varnish is included in the items it is noted as supplied by weight. The above extracts relating to Ely Cathedral will be found in the *Archæologia*, Vol. IX.

The following extracts relate to the work

executed in St. Stephen's Chapel, Sept. 19. 1352, twenty-fifth year of Edward III :—" For nineteen flagons of painter's oil, bought for the painting of the Chapel, at 3s. 4d. the flagon, 43s. 4d." The purchaser of this oil was evidently allowed a generous discount from the maker, who is elsewhere mentioned as the, then, principal painter, named Hugh, of St. Albans. Again, on March 13, 1353 :—" To Thomas Drayton, for eight flagons of painter's oil, bought for the painting of the Chapel, at 2s. 6d. the flagon, 20s." And on May 13, in the same year :—" To John de Hennay for seventy flagons and a half of painter's oil (bought for painting of the same chapel) at 20d. the flagon, 117s. 6d."

The great variation in the price of oil mentioned in the above extracts points to the fact that the cheaper and commoner kinds were doubtless used for the commoner work of the decoration such as in the coatings of the ground colours on the large surfaces of walls, ceilings, and columns, and the more expensive oil was the refined and purified kind which would be used for the painting of the "ymagines" and other pictorial designs, that were usually painted on the interior surfaces of nearly all churches, cathedrals and palaces of the Middle Ages. If we had no other proofs that such buildings were not considered finished until they had received a universal colour decoration, the extracts from the accounts, above quoted, furnish the required testimony. This information, together with the vestiges of colour and fragments of decorative painting that are still found on

portions of the interiors of old churches and mediæval buildings, or that have been brought to light, after remaining hidden under whitewash for centuries, afford conclusive proof that colour and decoration were applied to almost every surface and architectural detail of these buildings both in England and on the Continent, which was only the continuation of the universal practice followed out in classical and still more ancient times.

Though oil painting as applied to easel pictures and altarpieces had not become a universal practice until long after the Van Eycks' time, there is proof enough, as we have seen, that oil was mixed with colours for decorative work, and in some cases in pictorial work in England, and also in Germany and Italy, as early as the latter end of the thirteenth century. The practice of oil painting was so extensive in the thirteenth and fourteenth centuries in England that this circumstance had led Walpole to doubt whether the Van Eycks' discovery was really their own. He suggests that when the Flemish painter was searching for a varnish, " Might he not have heard that such a varnish or composition was in use in England ? " Wornum, the editor of Walpole's *Anecdotes of Painting*, agrees with this statement of the author.

The practice of oil painting as taught by Eraclius, the oldest writer on the subject, agrees, as Eastlake points out, " in many details with that exemplified in the English records," and, " this may warrant the supposition that he com-

posed his treatise in this country, for oil painting was more generally and more successfully employed in England than elsewhere in the thirteenth and fourteenth centuries."

The mere immixture of oil with colours was an old practice in Italy and Germany, but Vasari, in his life of Agnolo Gaddi, who died in 1396, makes the reservation, namely, that even this simple method was not then adopted in Italy for "figure" painting. It is true that Vasari makes this remark in reference to a precisely similar one by Cennini in his quotation from the latter's *Treatise on Painting*, but it is interesting inasmuch as it shows to us that Vasari himself was not aware of any figure painting that was executed in the oil medium until after the days of the Van Eycks. As regards the word "figures" used by Vasari, Cennini, and other contemporary writers in connection with oil painting, we may understand it to mean the flesh portions of the figures in pictures, and not the draperies, for in examining most of the fifteenth century pictures we usually find that nearly all of the draperies, including those in the Van Eyck paintings, are more or less covered with cracks, while the flesh portions are comparatively in a smooth and sound state, and generally free from any surface cracking. This would point to the fact that the flesh portions of the figures were executed in a tempera medium, and varnished afterwards with a white varnish, while the draperies, backgrounds, and accessories were executed either in the new medium of oil colour, or varnished with a thicker and darker

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kind of oil varnish, if they were not painted directly in a varnish medium.

In the second volume of this work we shall treat of the history of modern painting from the time of Cimabue onwards.

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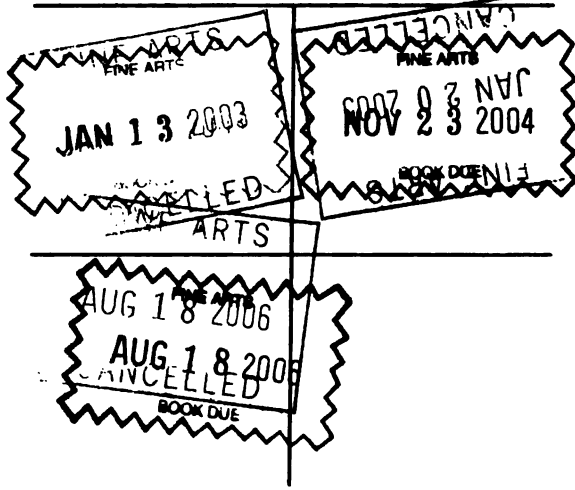
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